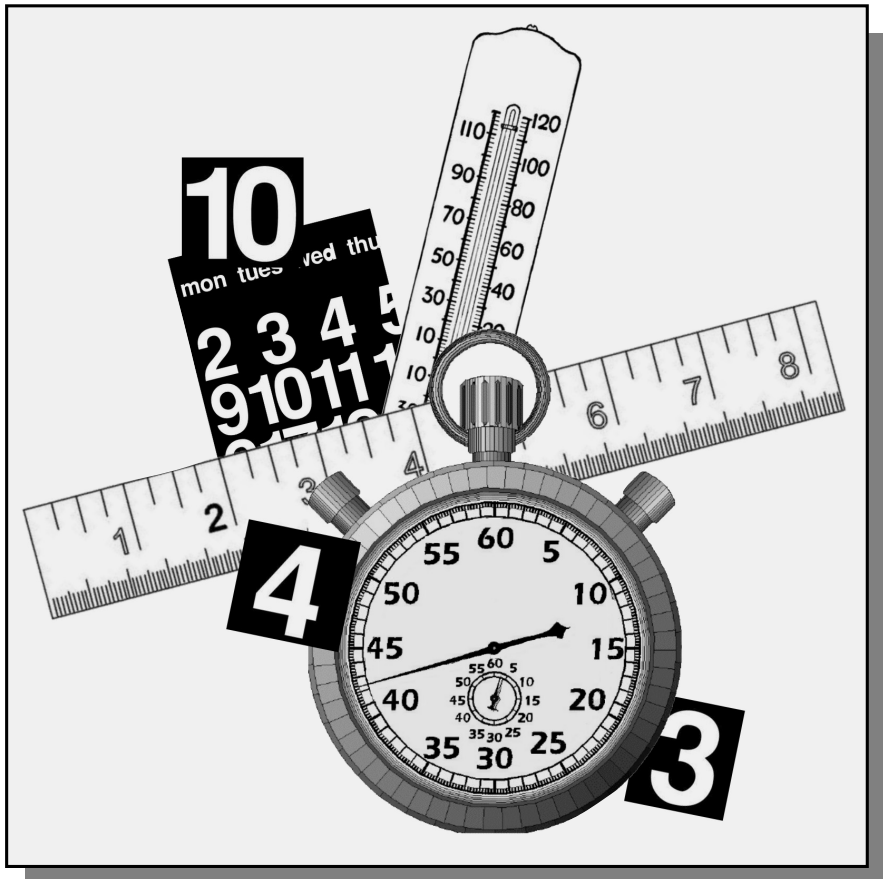
Intermediate Math Skills

Activities



Chapter 3

IMS: 76043 Revision: 030208

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Intermediate Math Skills

Chapter 3

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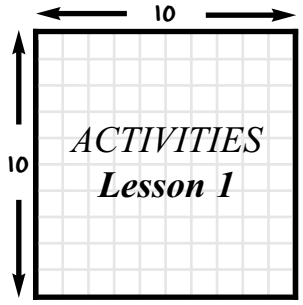
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Converting

Review Length



You are making progress! ***Answer the following questions. Choose the correct answers or fill in the blanks with words, letters or numbers as each question indicates. Check your answers from the Answer Key. Correct all errors, then complete your next goal.***

1. _____ identifies how long something is.

2. A(n) _____ is a method of changing one unit of measurement into another unit of measurement.

3. ***Conversion*** factors must be set up so that the units will _____ out.

4. Setting up the conversion factors correctly, helps you know that you are multiplying and dividing the _____ conversion factors together.

Refer to Example Set 1 to answer questions 5-11.

5. At boot camp the recruits ran _____ miles each day before breakfast.

6. In Step 1, 1 mile = _____ feet.

7. In Step 1, 1 foot = _____ inches.

8. In Step 1, 1 week = _____ days.

9. In Step 2, the conversions are set up so that the units will _____ out.

10. In Step 3, the units, _____, _____ and _____ divide out.

11. In Step 4, 5,280 • 7 • 12 inches = _____ inches.

Refer to Example Set 1 to work problems 12-14. Show your work and write your answers for each problem on the blank. Be sure to refer to the Mathematics Chart to determine the conversion factors.

12. In the 1936 Olympics held in "*Nazi"* Germany, Black athlete, Jesse Owens won four gold medals. This fact greatly upset Adolf Hitler, the dictator of "*Nazi"* Germany who was a White supremacist. One of the gold medals that Mr. Owens won was for the long jump. Jesse's personal best jump was 26 feet, 8.25 inches. Calculate how many inches Jesse Owens' personal best jump contained. _____

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13. A farmer wanted to build a barbed-wire fence around his property. After driving around the perimeter of the property, the farmer determined that the fence would need to be 2 miles long. Calculate how long the fence will be in *feet*.

_____

14. If the farmer in #13 built another fence three miles long, calculate the distance in yards.

_____

Refer to Example Set 2 to answer questions 15-20.

15. Sebastian Coe competed in the _____ m and _____ m runs.

16. In Step 1, 1,500 m - 800 m = _____.

17. In Step 1, 1 meter = _____ cm.

18. In Step 2, the conversions are set up so that the _____ divide out.

19. In Step 3, the calculations are performed by using the rules for _____ fractions.

20. In Step 4, 1,500 • 100 • 10 mm = _____.

Refer to Example Set 2 to work problems 21-22.

21. In the 1936 Olympics, Jesse Owens also won a gold medal in the 100 m run. Calculate how many millimeters (mm) Jesse ran. _____

(a) 100,000 mm (b) 10,000 mm (c) 1,000 mm (d) 10 mm

22. Another gold medal won by Jesse Owens was for the 200 m run. Calculate how many centimeters Mr. Owens ran. _____

(a) .200 cm (b) .20 cm (c) 2,000 cm (d) 20,000 cm

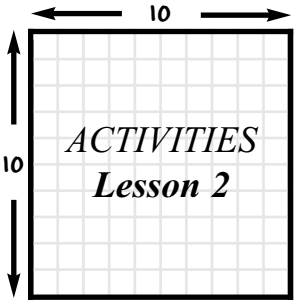
23. Write the **Life Principle**: "_____

_____."

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Name: _____

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Converting

Review Measure

You are making progress! ***Answer the following questions. Choose the correct answers or fill in the blanks with words, letters or numbers as each question indicates. Check your answers from the Answer Key. Correct all errors, then complete your next goal.***

1. You need to refer to the _____ at the end of this chapter for formulas and ***conversions***.

2. A method of changing one unit to another is a(n) _____.

3. _____ is the amount of space that something occupies.

4. If you set up the conversion factors correctly, the units will _____ out.

Refer to Example Set 1 to answer questions 5-11.

5. Professor K needs to calculate how many cups are in _____ gallons.

6. In Step 1, 1 gallon = _____ quarts.

7. In Step 1, 1 quart = _____ pints.

8. In Step 1, 1 pint = _____ cups.

9. In Step 3, Professor K performed the calculations following the rules for _____ fractions.

10. In Step 3, the units *gallons*, _____ and *pints* divide out.

11. In Step 4, Professor K determined that 4 gallons = _____ cups.

Refer to Example Set 1 to work questions 12-14. Show your work.

12. Professor K's gas tank on his car holds 20 gallons of gasoline. If "a pint is a pound the world around," how many ounces of gasoline will the gas tank hold?

_____

(a) 256.0 oz (b) 2,560 oz (c) 160 oz (d) 64 oz

13. If "a pint is a pound the world around," how many ounces are in a quart? _____

(a) 16 oz (b) 38 oz (c) 36 oz (d) 32 oz

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14. Professor K had 16 quarts of milk in his refrigerator. How many gallons of milk does Professor K have? _____ (Hint: Remember, you must place the conversion in the numerator or denominator so that the unit, *quarts* will divide out, leaving *gallons* in the numerator.)

Refer to Example Set 2 to answer questions 15-22.

15. The pharmacist received ____ liters of allergy medicine.

16. This medicine was prescribed in doses of _____ ml each.

17. In Step 1, 1 liter = _____ ml.

18. In Step 2, the conversion factors are set up in the problem so that the _____ will divide out.

19. In Step 3, the units, _____ and _____ divide out.

20. $^{3,000}/_{2}$ = 3,000 ÷ _____ = 1,500 doses.

21. If the dose of the allergy medicine were increased to 4 ml, calculate the number of doses the supply of 3 liters would contain. _____

22. A bottle of orange juice contains 355 milliliters of juice. Calculate how many liters the bottle of juice will hold. (Remember, you must place the conversion in the numerator or denominator so that the unit, *milliliters* will divide out leaving *liters* in the numerator.) _____

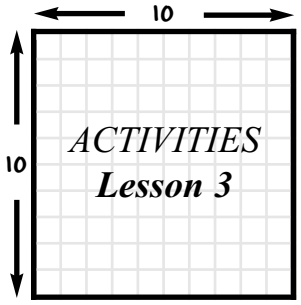
23. Write the **Life Principle**: "_____ _____."

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Converting

Review Weight



You are making progress! ***Answer the following questions. Choose the correct answers or fill in the blanks with words, letters or numbers as each question indicates. Check your answers from the Answer Key. Correct all errors, then complete your next goal.***

1. This lesson is a review of measurements of _____.

2. You should refer to the Mathematics Chart provided at the _____ of this chapter for formulas and conversions.

3. ***Weight*** is the amount of _____ with which _____ pulls an object to the Earth.

Refer to Example Set 1 to answer questions 4-11.

4. The 2000 Olympics was held in _____, Australia.

5. The U.S. weightlifting champion was _____ who lifted _____ pounds at the 2000 Olympics.

6. In Step 1, 1 pound = _____ ounces.

7. In Step 2, _____ is the denominator of the first fraction.

8. In Step 3, the unit, _____ divides out.

9. In Step 4, Professor K determined that Mr. Hamman lifted _____ ounces.

10. In the 2000 Olympics, Hossein Rezazadeh of Iran won a gold medal in a lift called *the snatch* by lifting 468.75 pounds. Calculate the difference between Hossein's lift and that of the second place lift of 457.75 pounds. Express your answer in ounces. (Hint: Subtract (difference) the two weights, then convert the answer from *pounds* to *ounces*.)_____

(a) 11 pounds (b) 167 oz (c) 176 oz (d) 77 oz (e) none of these

11. In the 2000 Olympics, Hossein Rezazadeh also lifted 573 pounds in the *Clean and Jerk* category. Calculate what fraction of a ton Hossein lifted. (Hint: The unit, tons, should be the only unit not divided out if the equation is set up properly.)

_____

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Refer to Example Set 2 to answer questions 12-19.

12. 429.25 pounds = _____ kilograms.

13. This example converts kilograms to _____.

14. In Step 1, 1 kilogram = _____ grams.

15. In Step 1, 1 gram = _____ milligrams.

16. In Step 3, the units, _____ and _____ divide out.

17. In Step 4, 195 • 1,000 • 1,000 milligrams = 195,000 • 1,000 milligrams = _____ milligrams.

18. In the 2000 Olympics, Rezazadeh set a world record in *the snatch* by lifting 212.5 kg. Calculate how many milligrams Rezazadeh lifted. _____

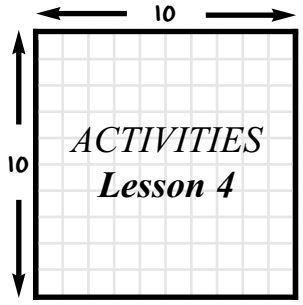
(a) 21,250,000 mg (c) 212,500 mg (e) none of these

(b) 2,125,000 mg (d) 21,250 mg

19. In the 2000 Olympics, Shane Hamman lifted 195 kg in *the snatch*. Calculate how many grams Mr. Hamman lifted. _____

20. Write the **Life Principle**: "_____ _____."

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Geometry

Review Perimeter and Area

You are making progress! ***Answer the following questions. Choose the correct answers or fill in the blanks with words, letters or numbers as each question indicates. Check your answers from the Answer Key. Correct all errors, then complete your next goal.***

1. The _____ of a polygon is determined by finding the sum of the length of all the sides.

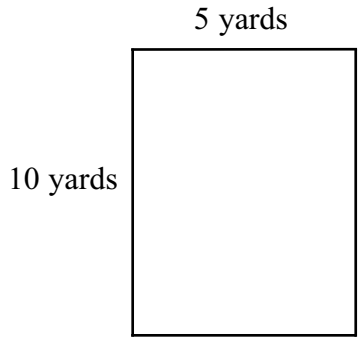
2. In Example Set 1, a(n) _____ is an eight sided figure.

3. In Example Set 1, the length of each side of the octagon is _____ units.

4. The ***perimeter*** of the figure in Example Set 1 is calculated by _____ (adding, multiplying) the length of the sides.

Refer to Example Set 1 and the Mathematics Chart to help you work problems 5-6.

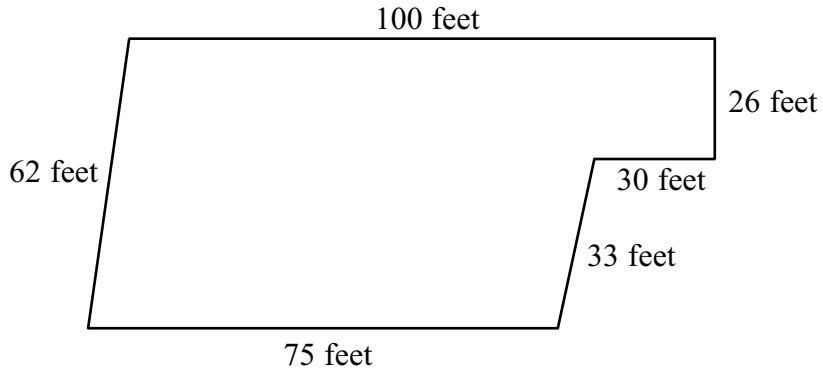
5. Professor K built a fence around his vegetable garden to keep out the rabbits. Look at the diagram of his garden and calculate how many yards of fencing material Professor K needs to enclose the garden. _____



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6. After building a fence around his garden, Professor K decided to build a fence around his entire yard to keep the neighborhood children from taking a shortcut across his lawn. Look at the diagram of Professor K's yard and calculate the amount of fence Professor K had to purchase. _____

(a) 324 feet (b) 334 feet (c) 336 feet (d) 326 feet



7. The distance around a circle is called the _____.

8. The line segment that passes through the center of a circle with its endpoints being located on the circle is called the _____ of the circle.

9. The _____ is a line segment between the point that is the center of a circle and a point on the circle.

Refer to Example Set 2 to answer questions 10-13.

10. The ***radius*** of the circle is _____.

11. The ***diameter*** of the circle is _____.

12. $C = 2\pi r = 2 \bullet$ _____ $\bullet 2$.

13. $C = \pi d = 3.14 \bullet$ _____

Refer to Example Set 2 and the Mathematics Chart to answer questions 14-15. Show your work and write your answer on the blank.

14. Calculate the ***circumference*** of a circle with a radius of 4. _____

(a) 12.56 units (b) 25.12 units (c) 50.24 units (d) 6.28 units

15. Calculate the circumference of a circle with a radius of 5. _____

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16. The K's living room is _____ feet long.

17. The K's living room is _____ feet wide.

Refer to Example Set 3 to answer questions 18-21.

18. Professor K located the formula for the _____ of a rectangle.

19. The formula for the area of a rectangle is A = _____.

20. In Example Set 3, $A = l \times w$ = _____ × 25 ft.

21. 30 ft × 25 ft = _____ = 750 ft^2.

Refer to Example Set 3 and the Mathematics Chart to answer questions 22-23. Show your work and write your answer on the blank.

22. Mrs. K wanted new linoleum for her dining room. Calculate the amount of square feet of linoleum Professor K will have to purchase if the dining room is 25 feet long and 20 feet wide. _____

23. Professor K's garden is 5 yards wide and 10 yards long. He needed to know the area of the garden so that he could purchase fertilizer. Professor K calculated the area of his garden to be _____.

24. Professor K's neighbor's pool was _____ feet in diameter.

25. The formula for the area of a circle is A = _____.

26. In Example Set 4, r = _____ = $^{20}/_{2}$ feet = 10 feet.

27. 10^2 = _____.

28. π = _____.

29. 3.14(100 ft^2) = _____ ft^2.

30. In Example Set 5, the amount of fence needed is _____.

31. In Example Set 5, Professor K used the formula for the area of a _____.

32. The formula for the area of a ***trapezoid*** is: A = _____.

33. $A = {}^1/_2(b_1 + b_2)h = {}^1/_2$ (80 ft + 40 ft) (_____ft)

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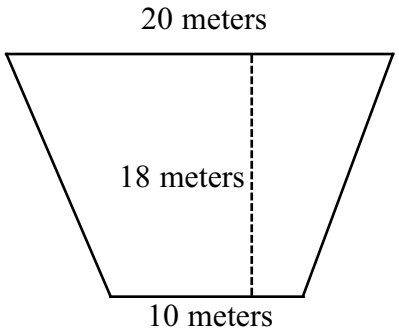
34. $\frac{1}{2}$(_____ ft) (50 ft) = ($\frac{120}{2}$ ft) (50 ft)

35. (60 ft)(50 ft) = _____ ft^2

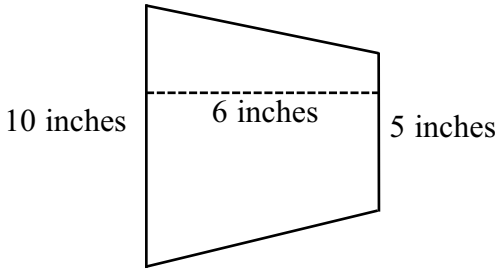
Refer to Example Set 5 and the Mathematics Chart to answer questions 36-37. Show your work and write your answer on the blank.

36. Calculate the area of the trapezoid shown below. _____

(a) 270 sq meters (b) 540 sq meters (c) 180 sq meters (d) 135 sq meters



37. Calculate the area of the trapezoid shown below. _____



38. Professor K's wife wanted a throw rug in the shape of a _____.

39. The base of the triangle formed by the rug was _____ feet.

40. The height of the triangle was _____ feet.

41. The formula for the area of a triangle is _____.

42. In Example Set 6, $A = \frac{1}{2}bh = \frac{1}{2}$(_____ ft)(8 ft).

43. $\frac{1}{2}$(40 ft^2) = _____ ft^2 = 20 ft^2

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Refer to Example Set 6 and the Mathematics Chart to answer questions 44-45. Show your work and write your answer on the blank.

44. Calculate the area of a triangle with a base of length 20 cm and a height of 15 cm.

_____

45. Calculate the area of a triangle with a base of length 10 feet and an altitude (height) of 5 feet. _____.

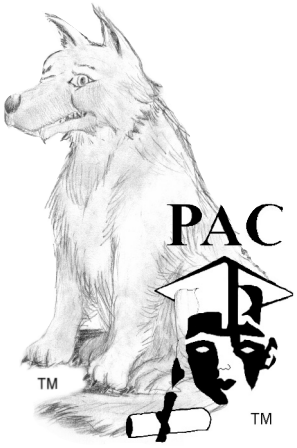
(a) 26 sq ft (c) 15 sq ft (e) none of these

(b) 50 sq ft (d) 100 sq ft

46. Write the **Life Principle**: "_____

_____."

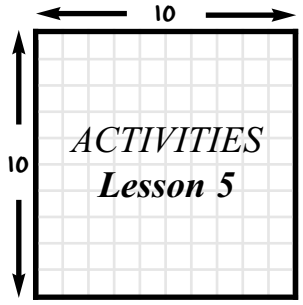
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Name: _____

Date: _____ Grade: _____



Geometry

Review Surface Area

You are making progress! ***Answer the following questions. Choose the correct answers or fill in the blanks with words, letters or numbers as each question indicates. Check your answers from the Answer Key. Correct all errors, then complete your next goal.***

1. The ***surface area*** of a solid is the total area of all the areas of the _____ of a polyhedron.

2. The toy box that Professor K wanted to build was in the shape of a _____.

3. The length of the edge of the toy box was _____ feet.

4. From Example Set 1, a cube has _____ sides.

5. In Example Set 1, Professor K could _____ the area of each side.

6. The formula for calculating the surface area of a cube is A_s = _____.

7. 2^2 = _____ = 4.

Refer to Example Set 1 and the Mathematics Chart to answer questions 8-9. Show your work and write your answer on the blank.

8. A child's alphabet block was in the shape of a cube. The length of the edge of the block is 2 inches. Calculate the surface area of the block. _____

(a) 8 sq inches (b) 16 sq inches (c) 24 sq inches (d) 32 sq inches

9. A metal file box was in the shape of a cube. Calculate the amount of metal required to construct the file box if one edge or side of the box measures 12 inches.

_____

10. In Example Set 2, the radius of the sphere is _____ inches.

11. In Example Set 2, one fluid ounce of craft paint would cover _____ square inches.

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12. The formula for the surface area of sphere is A_s = _____.

13. In Example Set 2, $A_s = 4\pi r^2 = 4 \bullet (3.14) \bullet (_____)^2$

14. $(6 \bullet 6)$ in^2 = _____.

15. $12.56 \bullet 36$ in^2 = _____ square inches

16. In Example Set 2, when calculating the number of bottles of paint required, the units of _____ divided out to obtain the unit of bottles in the final answer.

Refer to Example Set 2 and the Mathematics Chart to answer questions 17-18. Show your work and write your answer on the blank.

17. The diameter of a globe in the geography classroom is 16 inches. Calculate the surface area of the globe. (Remember, the radius is one-half the diameter.) _____

(a) 803 sq in. (b) 804 sq in. (c) 402 sq in. (d) 3,215 sq in.

18. The radius of a glass sphere placed on top of a table decoration is 8 cm. Calculate the surface area of the glass sphere. _____

19. The popcorn tin in Example Set 3, is _____ inches tall.

20. The popcorn tin in Example Set 3, is _____ inches across.

21. The fact that the popcorn tin is 31 inches around _____ (is, is not) needed in the formula.

22. $r = {}^{d}/_{2} = {}^{11}/_{2}$ inches = _____ inches.

23. The formula for the surface area of a cylinder is _____.

24. $A_s = 2\pi rh + 2\pi r^2 = 2 \bullet (3.14) \bullet (_____) \bullet (12 \text{ in}) + 2 \bullet (3.14) \bullet (5.5 \text{ inches})^2$.

25. 414.48 in^2 + 34.54 in^2 = _____ in^2.

Refer to Example Set 3 and the Mathematics Chart to answer questions 26-27. Show your work and write your answer on the blank.

26. Mrs. K wanted to wrap a coffee can in paper, but she did not want to cover the ends of the coffee can. Calculate the ***lateral*** surface area of the coffee can if the radius of the can is 3 inches and the height is 6 inches. _____

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27. If Mrs. K changed her mind and decided to cover the entire coffee can in #26, the total surface area of the coffee can, rounded to the nearest tenth would be _____.

Refer to Example Set 4 to answer questions 28-34. Show your work and write your answer on the blank.

28. The party hats were in the shape of _____.

29. The number of hats Mrs. K needed to construct was _____ hats.

30. The diameter of each hat was _____ cm.

31. The lateral height of the cone was _____ cm.

32. The radius of the cone in Example Set 4 is _____ cm.

33. Professor K used the formula for the lateral surface area of a cone, A_{ls} = _____.

34. $A_{ls} = \pi rl$ = (3.14) • (5 cm) • (15 cm) = 15.7 cm • 15 cm = _____ cm^2.

35. Calculate the lateral surface area of a wooden block in the shape of a cone, if the radius of the base is 2 inches and the lateral height is 4 inches. _____

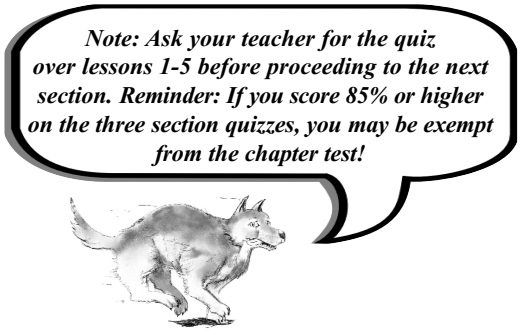
(a) 8.2 sq in. (b) 16 sq in. (c) 25.12 sq in. (d) 32.8 sq in.

36. Calculate the lateral surface area of a cone of radius 10 and lateral height of 10.

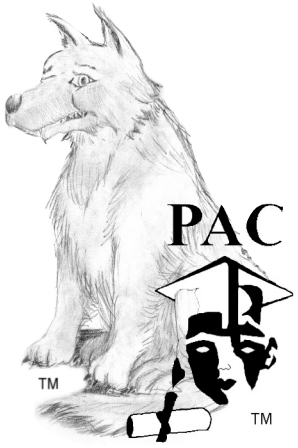
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37. Write the **Life Principle**: "_____

_____."



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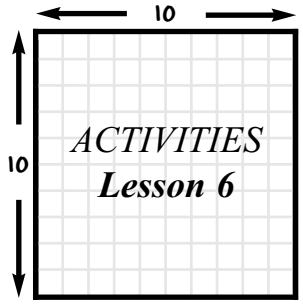


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Geometry

Review Volumes



You are making progress! ***Answer the following questions. Choose the correct answers or fill in the blanks with words, letters or numbers as each question indicates. Check your answers from the Answer Key. Correct all errors, then complete your next goal.***

1. The water storage tank on Professor K's ranch was in the shape of a(n) _____.

2. The tank was _____ feet across.

3. The tank was _____ feet tall.

4. The amount of space something occupies is called _____.

Look at Example Set 1 to answer questions 5-12.

5. In Step 1, the formula for the ***volume*** of a cylinder is V = _____.

6. In Step 1, the B in the formula is the area of the _____.

7. In Step 1, for a cylinder, $B = A$ = _____.

8. In Step 2, $V = \pi r^2 h = 3.14 \bullet$ _____ $\bullet$ 15 feet.

9. In Step 2, 78.5 ft^2 $\bullet$ 15 ft = _____ cubic feet.

10. In Step 3, one cubic foot is approximately _____ gallons.

11. In Step 3, the units, _____ divide out.

12. In Step 3, 1,177.5 $\bullet$ 7.5 gal = _____ gallons.

Refer to Example Set 1 and the Mathematics Chart to answer questions 13-14. Show your work and write your answer on the blank.

13. Calculate the volume of a juice can in the shape of a cylinder if the radius of the can is 1 inch and the height is four inches. _____

(a) 12.56 cubic in. (b) 125.6 cubic in. (c) 3.14 cubic in. (d) 4 cubic in.

14. Calculate the volume of a cylindrical storage tank if the diameter of the tank is 12 feet and the height of the tank is 20 feet. (Use 3.14 for π) _____

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15. The town near Professor K's farm has a large storage tank in the shape of a(n) _____.

16. The diameter of the storage tank is _____.

Refer to Example Set 2 to answer questions 17-21.

17. The very first step Professor K took to solve this problem was to make a(n) _____ of the water tank.

18. In Step 1, the formula for the volume (***capacity***) of a sphere is $V =$ _____.

19. Professor K _____ the dimensions of the water storage tank and the value of _____ into the formula.

20. $r = {}^{d}/_{2} =$ _____ = 30 feet.

21. In Step 2, ${}^{27,000}/_{3} =$ _____.

Refer to Example Set 2 and the Mathematics Chart to answer questions 22-23. Show your work and write your answer on the blank.

22. Calculate the volume of a city water tower that is in the shape of a sphere, if the radius of the tank is 21 feet. _____ (Use 3.14 for π)

23. At a local oil refinery, a spherical storage tank stands 82 feet tall. Calculate the volume of the tank in cubic feet. _____ (Use 3.14 for π)

24. A square prism is 4 inches wide, 4 inches high, and 8 inches long. Refer to the Mathematics Chart to help you calculate the volume of the prism. _____

25. Write the **Life Principle**: "_____ _____."

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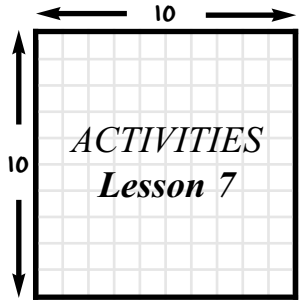
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Date: _____ Grade: _____



Algebra

Review Pythagorean Theorem



You are making progress! ***Answer the following questions. Choose the correct answers or fill in the blanks with words, letters or numbers as each question indicates. Check your answers from the Answer Key. Correct all errors, then complete your next goal.***

1. This lesson is a review of the _____.

2. From the Mathematics Chart the Pythagorean Theorem is c^2 = _____.

Refer to Example Set 1 to answer questions 3-9.

3. Professor K's wife wanted a(n) _____ net placed in the backyard.

4. The height of the post holding the net is _____ feet.

5. The distance from the bottom of the post to the stake is _____.

6. In the Pythagorean Theorem, "The square of the ***hypotenuse*** of a right triangle equals _____ _____."

7. In Step 2, $c^2 = a^2 + b^2 \rightarrow c^2$ = ____ + _____. The letter c in this formula represents the _____.

8. $6^2 = 6 \bullet$ _____.

9. c^2 = _____.

10. In ***radical form***, $\sqrt{c^2} = \sqrt{72} \rightarrow c =$ _____ (Use a calculator to find the answer.)

Refer to Example Set 2 to answer questions 11-17.

11. A baseball diamond is in the shape of a(n) _____.

12. The distance between the bases is _____.

13. Professor K made a diagram of a(n) _____.

14. In Step 2, Professor K _____ the dimensions of the triangle into the Pythagorean Theorem.

15. $c^2 = a^2 + b^2 = 60^2 +$ _____.

16. _____ $= 60 \bullet 60$.

17. In Step 3, c = _____. (Use a calculator to determine the answer.)

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Refer to the examples and the Mathematics Chart to work problems 18-24. Show your work and write your answer on the blank.

18. Using the dimensions of the baseball field in Example Set 2, calculate to the nearest tenth the straight-line distance between first and third base. _____ (Use a calculator to determine the answer.)

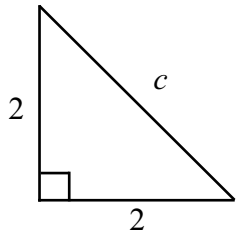
19. If the distance between the bases of a baseball diamond is 90 feet, calculate to the nearest *hundredth* the distance a catcher would have to throw the ball from home plate to second base. _____ (Use a calculator to determine the answer.)

20. Calculate to the nearest whole number the length of a support cable to a radio transmission tower if the tower is 300 feet tall and the cable is attached to the ground 50 feet from the bottom of the tower. _____ (Use a calculator to determine the answer.)

21. Calculate the value of c in the triangle below. Write your answer in proper form.

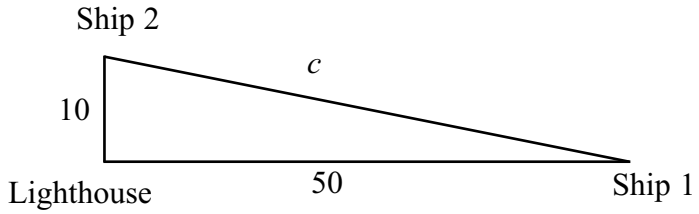
_____

(a) $\sqrt{8}$ units (b) $\sqrt{4}$ units (c) 2 units (d) $2\sqrt{2}$ units



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22. One ship is 50 miles from a lighthouse. Another ship was 10 miles from the lighthouse. Calculate the distance between the two ships if they are positioned according to the diagram below (rounded to the nearest whole number). _____



23. The length of the legs of a right triangle are 1 cm and $\sqrt{3}$ cm. Calculate the length of the hypotenuse. _____

(a) 1 cm (b) 2 cm (c) 3 cm (d) 4 cm

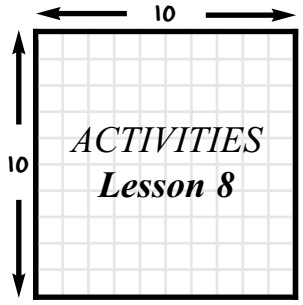
24. The length of the legs of a right triangle are $\sqrt{5}$ m and $\sqrt{5}$ m. Calculate the length of the hypotenuse. _____ (Write your answer in proper form.)

25. Write the **Life Principle**: "_____
_____."

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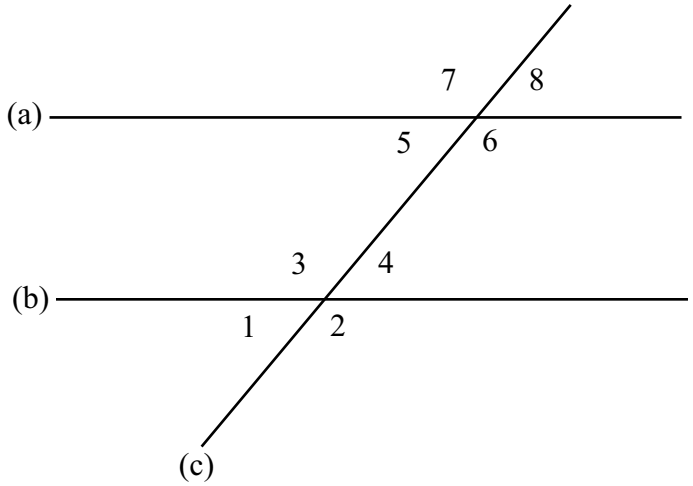


Geometry

Review Similar

You are making progress! ***Answer the following questions. Choose the correct answers or fill in the blanks with words, letters or numbers as each question indicates. Check your answers from the Answer Key. Correct all errors, then complete your next goal.***

Look at the figure below and Example Set 1 to answer questions 1-8.



Write "vertical angles," "supplementary angles," or "corresponding angles" on the blanks. Some questions have more than one answer. Be sure to write all the names for the angles that apply.

1. $\angle 1 \cong \angle 4$, $\angle 5 \cong \angle 8$, $\angle 2 \cong \angle 3$, $\angle 6 \cong \angle 7$ _____

2. $\angle 5$ & $\angle 6$ _____

3. $\angle 1$ & $\angle 3$ _____

4. $\angle 6$ & $\angle 8$ _____

5. $\angle 2 \cong \angle 3$ _____

6. The sum of the measures of _____ angles equals 180°.

7. Which line of the diagram (a, b or c) is a ***transversal***? _____

8. ***Vertical angles*** are on opposite sides of intersecting lines, and their measures are _____.

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Refer to Example Set 2 to answer questions 9-12.

9. m∠ADB = _____.

10. m∠BDC = _____.

11. m∠ADB + m∠BDC = _____ + 50° = 180°.

12. ∠ADB and ∠BDC are _____ angles because the sum of their measures is 180°.

Refer to Example Set 3 to answer questions 13-16.

13. m∠ABC = _____.

14. m∠CBD = _____.

15. m∠ABC + m∠CBD = _____.

16. Angles ABC and CBD are _____ because the sum of their measures equals 90°.

Refer to the examples to answer questions 17-24. Write "complementary," "supplementary," or "neither" on the blank, to describe the angles shown.

17. m∠A = 92°; m∠B = 88° Example: m∠A + m∠B = 92° + 88° = 180°

_____

18. m∠A = 42°; m∠B = 48°

_____

19. m∠A = 57°; m∠B = 33°

_____

20. m∠A = 62°; m∠B = 28°

_____

21. m∠A = 102°; m∠B = 78°

_____

22. m∠A = 45°; m∠B = 45°

_____

23. m∠A = 141°; m∠B = 39°

_____

24. m∠A = 100°; m∠B = 80°

_____

25. Write the **Life Principle**: "_____

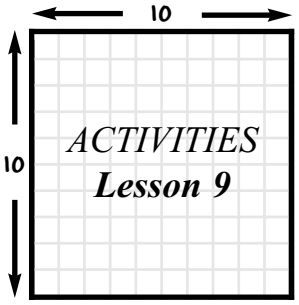
_____."

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Fractions

Review Ratio and Proportion



You are making progress! ***Answer the following questions. Choose the correct answers or fill in the blanks with words, letters or numbers as each question indicates. Check your answers from the Answer Key. Correct all errors, then complete your next goal.***

1. A comparison of two numbers is called a(n) _____.

2. A(n) _____ is an equation of two ***ratios*** separated by an equals sign.

3. According to Rule 2, to determine if ratios are ***proportional*** you must _____. If the products are _____, the ratios are proportional.

Determine if the ratios in questions 4-7 are proportional. Write Yes or No on the blank.

4. $^{50}/_{100}$ and $^{20}/_{100}$; $^{50}/_{100} = {}^{20}/_{100} \rightarrow 50 \bullet 100 = 20 \bullet 100 \rightarrow 5{,}000 \neq 2{,}000$ _____

5. $^{5}/_{10}$ and $^{1}/_{2}$ _____

6. $^{3}/_{4}$ and $^{75}/_{100}$ _____

7. $^{1}/_{3}$ and $^{2}/_{5}$ _____

Refer to Example Set 1 to answer questions 8-15.

8. School A has _____ girls.

9. School B has _____ boys.

10. The ratio of boys to girls in School A is _____.

11. The ratio of boys to girls in School B is _____.

12. School C has _____ girls.

13. Professor K used the letter, _____, to represent the number of boys in School C.

14. Professor K _____ to obtain the equation $2x = 1 \bullet 600$.

15. Professor K calculated that there are _____ boys in School C.

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Refer to Example Set 2 to answer questions 16-22.

16. Professor K was considering purchasing one of two _____.

17. Professor K set up a _____ for the fuel efficiency of each car, designated as Car A and Car B.

18. Car A: $\frac{220 \text{ miles}}{11 \text{ gallons}} = \frac{x \text{ miles}}{1 \text{ gallon}} \rightarrow 220 \bullet 1 =$ _____

19. Car A's fuel efficiency was _____ miles per gallon.

20. Car B: $\frac{300 \text{ miles}}{15 \text{ gallons}} = \frac{x \text{ miles}}{1 \text{ gallon}} \rightarrow$ _____ $\bullet 1 = 15x$

21. Car B's fuel efficiency was _____ miles per gallon.

22. Considering only the fuel efficiency, does it matter which car Professor K purchases?
_____ (a) Yes or (b) No

Refer to the examples to answer questions 23-26.

23. Professor K's math class has twenty students. Seven of the students are boys and thirteen of the students are girls. Calculate the ratio of girls to boys in Professor K's class.
_____

24. In the previous problem, calculate the ratio of boys to the total number of students in the class. _____

25. If a company's assets are $500,000 and its debts are $250,000, calculate the ratio of the company's debts to its assets. _____
(a) $^1/_4$ (b) $^1/_2$ (c) $^1/_3$ (d) $^1/_5$

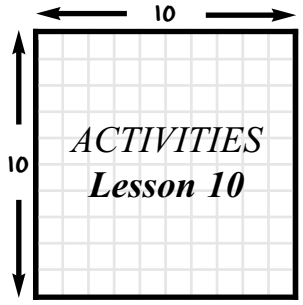
26. A store hired 50 new employees. Twenty of the new employees were women. Calculate a) the ratio of men to women and b) the ratio of women to the total of the new employees. a)_____ b)_____
(a) $^2/_3$, $^2/_5$ (b) $^3/_2$, $^3/_5$ (c) $^3/_2$, $^2/_5$ (d) $^2/_3$, $^3/_5$ (e) $^3/_2$, $^3/_5$

27. Write the **Life Principle**: "_____
_____."

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Name: _____

Date: _____ Grade: _____





Geometry

Review Similar Shapes

You are making progress! ***Answer the following questions. Choose the correct answers or fill in the blanks with words, letters or numbers as each question indicates. Check your answers from the Answer Key. Correct all errors, then complete your next goal.***

1. This lesson concerns _____ shapes.

2. ***Similar*** objects have the same _____, but not necessarily the same _____.

3. The symbol, $\cong$, means one item is _____ to another item.

4. To be ***congruent*** means that the measure of the angles or lengths of lines are _____.

Refer to Example Set 1 to answer questions 5-10.

5. $\triangle ACE \sim \triangle BDE$ because of the _____ property of similar triangles.

6. The measure of BE is _____ units.

7. The measure of AC is _____ units.

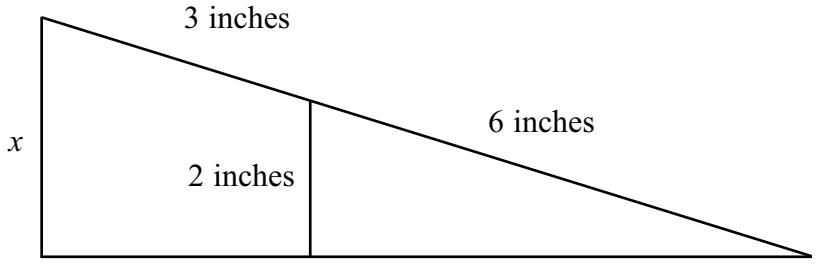
8. The measure of BD is _____ units.

9. $^{15}/_{10} = {}^{5}/_{x} \rightarrow$ _____ = 5(10).

10. The length of side x is _____ units.

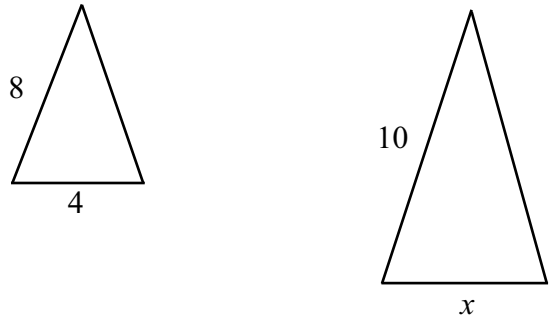
Refer to Example Set 1 to work the following similarity problems.

11. The triangles shown below are similar. Calculate the value of x. _____



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12. The triangles below are similar. Calculate the value of x. _____



Refer to Example Set 2 to answer questions 13-16.

13. Professor K is determining a _____ in this problem.

14. Professor K set up a _____ between the smaller triangle and the larger triangle.

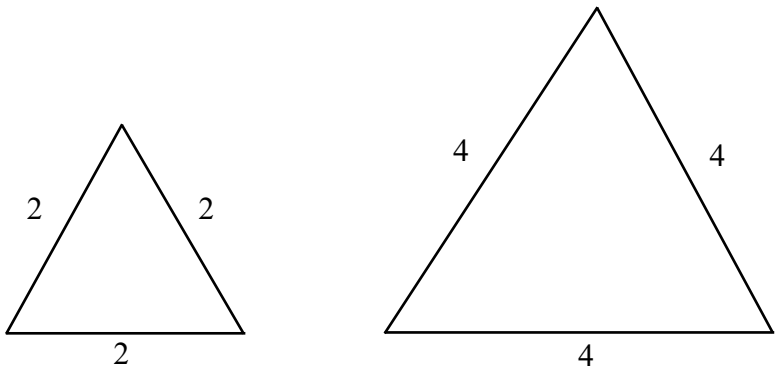
15. $\triangle BDE$ is a $^2/_3$ _____ of $\triangle ACE$.

16. ***Dilation*** means _____.

Refer to Example Set 2 to work the following problem involving dilation.

17. Determine the scale factor between the two shapes. _____

(a) $^1/_2$ (b) 2 (c) 4 (d) 1 (e) a or b (f) b or c



Refer to Example Set 3 to answer questions 18-21.

18. The length of the sides of square A is _____ times the length of the sides of square B.

19. Area is determined by _____ two lengths.

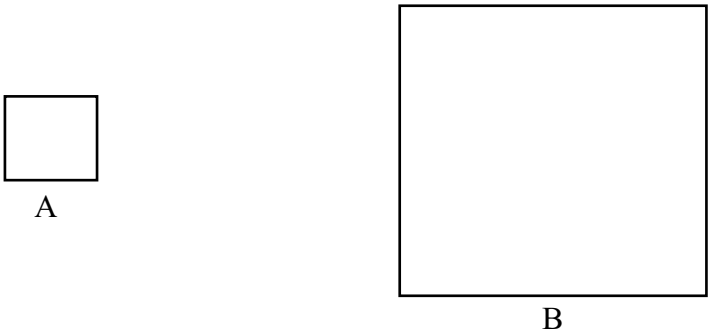
20. The area of square A would be _____ times that of square B.

21. The ratio of the area of square A to square B: $^A/_B = {}^{36}/_4 = {}^{(4 \bullet 9)}/_4 =$_____

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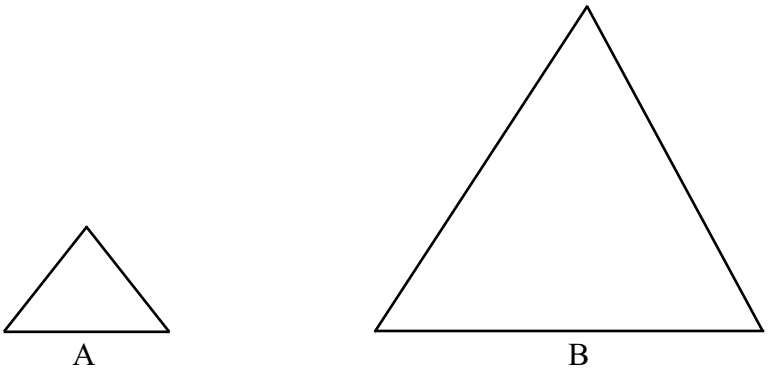
Refer to Example Set 3 to work the following problems (22-23).

22. The length of the sides of square B is 4 times that of square A. The area of square A is _____ of that of square B.



23. The length of the sides of $\triangle$B is three times that of the length of the sides of $\triangle$A. What is the scale factor between areas of the two triangles. _____

(a) 9 (b) 3 (c) 2 (d) 18



Refer to Example Set 4 to answer questions 24-30.

24. The length of the edge of cube A is _____ the length of cube B.

25. Volume is determined by multiplying _____ lengths.

26. The volume of cube A would be _____ times that of cube B.

27. The scale factor is _____.

28. The volume of cube A = $6 \bullet 6 \bullet 6$ = _____ cubic units.

29. The volume of cube B = $2 \bullet 2 \bullet 2$ = _____ cubic units.

30. The ratio of the volume of cube A to cube B: $^{A}/_{B} = {}^{216}/_{8} = {}^{(8 \bullet 27)}/_{8} =$ _____.

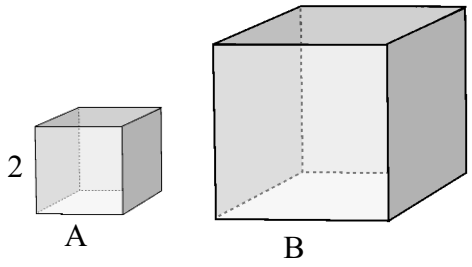
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Refer to Example Set 4 to answer questions 31-32.

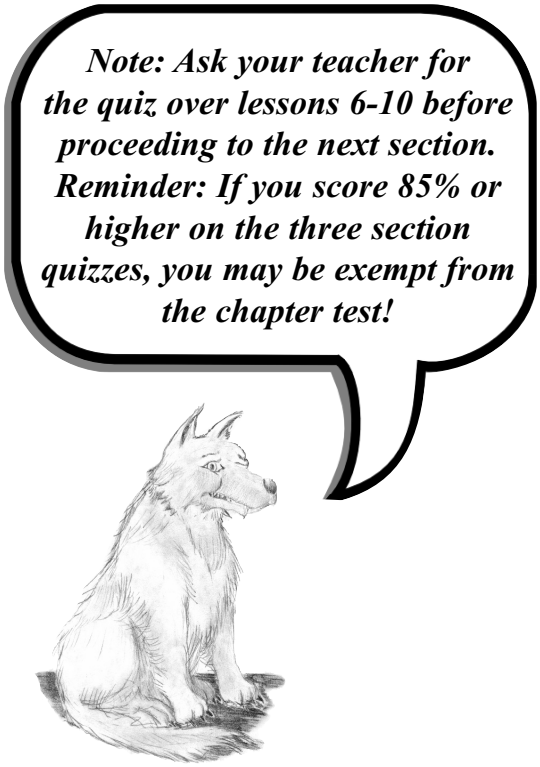
31. The edge of one cube is 4 times the length of another cube. Calculate the comparison (scale factor) between the volumes of the two cubes. _____

32. Look at the two cubes below. Determine the volume of cube B if the length of an edge is twice that of cube A. _____

(a) 16 cubic units (b) 32 cubic units (c) 64 cubic units (d) 128 cubic units



33. Write the **Life Principle**: "_____
_____."

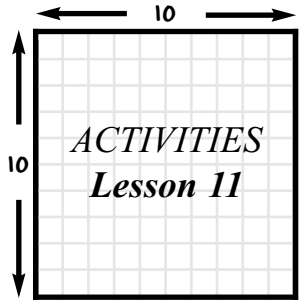


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Graphs

Review Graphs

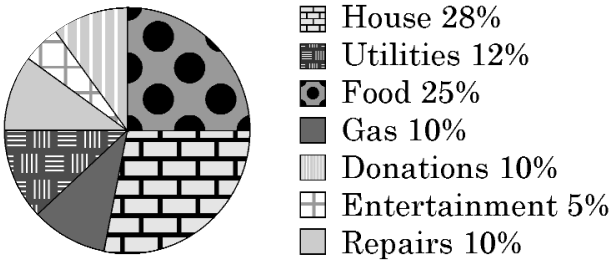


You are making progress! ***Answer the following questions. Choose the correct answers or fill in the blanks with words, letters or numbers as each question indicates. Check your answers from the Answer Key. Correct all errors, then complete your next goal.***

1. A(n) _____ is a pictorial representation of the comparison of two or more numbers.

2. In Example Set 1, the pie ***graph*** represents a family's household _____.

Refer to the pie graph below to answer questions 3-5.



3. The category on which the family spends the smallest amount of money is _____.

4. The category on which the family spends the largest amount of money is _____.

5. The three categories that comprise 30% of the budget when added together are _____, _____, and _____.

Refer to Example Set 2 to answer questions 6-8.

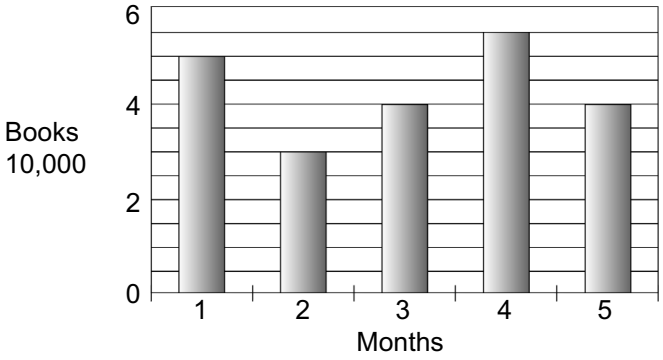
6. The graph in Figure 11.2 is a(n) _____ graph.

7. The _____ represents the number of each salesman.

8. The ***y-axis*** represents the number of _____ each salesman sold.

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Refer to the graph below to answer questions 9 -11.



9. The graph above is a graph of sales of math books by a publisher for each of the first five months of a last year. The y-axis represents the number of _____ in *10,000s*. The ***x-axis*** is the number of each _____. The most books were sold during the _____ month.

10. The graph shows the same number of books were sold during months _____ and _____.

11. There were _____ books sold during the first month.

Refer to Example Set 3 to answer questions 12-15.

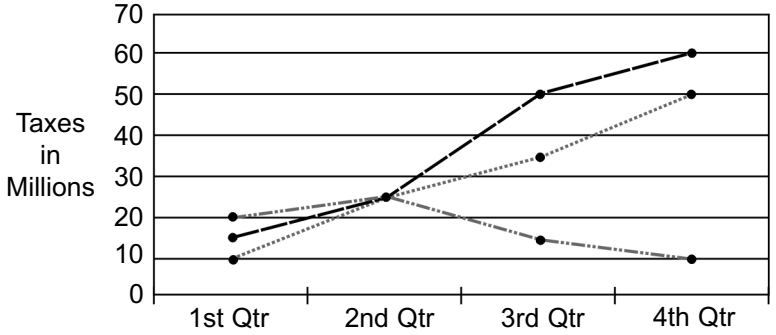
12. Figure 11.3 is a graph of a company's gross _____ for its three regional offices.

13. The legend is located to the _____ of the graph.

14. The Eastern office had sales of 20 million dollars in both the _____ and _____ quarters.

15. The _____ office achieved peak sales of _____ dollars during the _____ quarter.

Refer to the graph below to answer questions 16-17.



16. Three city sales tax revenues are plotted on the graph above. In which quarter of the year did all three cities collect the same amount of sales tax? _____.

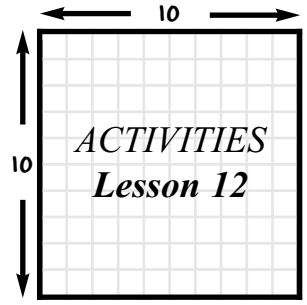
17. How many city's revenues equal 10 million dollars at least once during the year? _____

18. Write the **Life Principle**: "_____ _____."

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Name: _____

Date: _____ Grade: _____





Predictions

Review Probability

You are making progress! ***Answer the following questions. Choose the correct answers or fill in the blanks with words, letters or numbers as each question indicates. Check your answers from the Answer Key. Correct all errors, then complete your next goal.***

1. The formula for ***chance*** or _____ is $\frac{\text{number of favorable outcomes}}{\text{elements in a sample set}}$.

Refer to Example Set 1 to answer questions 2-6.

2. The number of favorable ***outcomes*** is placed in the _____.

3. The elements in the ***sample set*** or the number of possible outcomes is placed in the _____.

4. Calculate the probability of drawing the number 10 from a box containing numbered slips of paper, if the box contained the numbers 1 to 50. _____

5. Calculate the probability of drawing a slip of paper with an even number from the same box used in #4 above. _____

6. Calculate the probability of **NOT** drawing a slip of paper where the number on the paper contained a 5. _____

Refer to Example Set 2 to answer questions 7-15.

7. The number cube had _____ sides.

8. The number of sides of the number cube is placed in the _____.

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9. The probability of rolling an A is _____ = _____.

10. The letter, _____, is on five of the sides.

11. The probability of rolling a D is $^{3}/_{12}$ = _____.

12. A number cube has six sides labeled 1, 2, 3, 4, 5, and 6. Calculate the probability of rolling a 4. _____

(a) $^{6}/_{1}$ (b) $^{1}/_{6}$ (c) $^{2}/_{3}$ (d) $^{1}/_{3}$

13. The number cube in question #12 is rolled again. Calculate the probability of rolling a *1*. _____

(a) $^{1}/_{6}$ (b) $^{1}/_{3}$ (c) $^{1}/_{4}$ (d) $^{6}/_{1}$

14. A number cube has eight sides labeled 1, 2, 3, 4, 5, 6, 7 and 8. Calculate the probability of rolling a *4*. _____

15. A number cube has ten sides labeled 1-10. Calculate the probability of rolling a *5*. _____

Refer to Example Set 3 to answer questions 16-24.

16. Matthew had a cup containing several colored _____.

17. The cup contained _____ marbles.

18. The first marble Matthew pulled from the cup was a(n) _____ marble.

19. The probability of pulling a green marble from the cup was _____.

20. Matthew did not return the _____ marble to the cup.

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21. P(white) = _____.

22. P(black) = _____.

23. P(green, white, black) = $^{2}/_{9} \bullet {}^{1}/_{9} \bullet$ _____.

24. $^{2}/_{324}$ =_____.

Refer to Example Set 3 to calculate probability in the following problems. An ice chest contained 4 bottles of orange juice, 5 bottles of grape juice and 1 bottle of apple juice.

25. Calculate the probability that the first bottle of juice pulled out randomly would be orange juice. _____

(a) $^{2}/_{5}$ (b) $^{4}/_{10}$ (c) $^{3}/_{5}$ (d) $^{6}/_{10}$ (e) c or d (f) a or b

26. Calculate the probability that the second bottle of juice pulled out randomly was the bottle of apple juice. (The first bottle was not returned to the ice chest.) _____

(a) $^{1}/_{10}$ (b) $^{9}/_{10}$ (c) $^{5}/_{10}$ (d) $^{1}/_{9}$ (e) $^{3}/_{9}$ (f) none of these

27. Calculate the probability that in five consecutive (one after the other, without returning the bottles to the ice chest) pulls, five bottles of grape juice would be pulled from the ice chest. _____

28. Write the **Life Principle**: "_____ _____."

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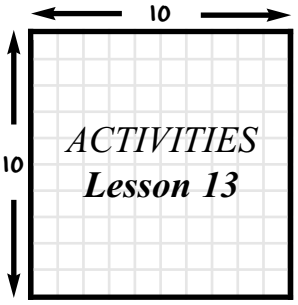


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Predictions

Review Rounded Estimates



You are making progress! ***Answer the following questions. Choose the correct answers or fill in the blanks with words, letters or numbers as each question indicates. Check your answers from the Answer Key. Correct all errors, then complete your next goal.***

1. This lesson concerns ***rounding*** and _____.

2. _____ allows you to make an ***estimation*** of the answer to a problem that involves whole numbers containing several digits, as well as fractions, or decimals.

3. A calculated guess is a(n) _____.

4. The distance to the sun or the number of people living in the world are usually only _____ or estimates of the exact answer.

Refer to Example Set 1 to answer questions 5-11.

5. This example shows how to _____ the square root of a number.

6. The value of $\sqrt{11}$ is between 3 and _____.

7. The point _____ is the best answer to the value of the square root of 11 as represented on the number line.

8. The value of the square root of 21 would be between the numbers *4* and _____ on a number line.

9. The value of the square root of 47 would be between the numbers _____ and *7* on a number line.

10. The value of the square root of 2 would be between the numbers *1* and _____ on a number line.

11. The value of the square root of 3 would be between the numbers *1* and _____ on a number line.

Refer to Example Set 2 to answer questions 12-16.

12. Professor K took his math class to eat _____.

13. Professor K rounded $4.65 up to _____.

14. Professor K rounded 21 down to _____.

15. Professor K is able to perform the rounded calculation of $5 \bullet 20 = 100$ in his _____.

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16. By rounding and estimating, Professor K knew quickly that he needed at least _____ to purchase pizzas for his class.

17. At a school board meeting, the school board was considering purchasing new computers for all of the school offices. The computers were $1,175.00 each and the school board needed to purchase nineteen computers. The school board asked Professor K, who was present at the meeting, to estimate the total cost of the computers. Which of the following amounts is the estimate Professor K presented to the board after rounding the figures? _____

(a) $2,400.00 (b) $11,750.00 (c) $24,000.00 (d) none of these

18. Estimate the product of 345 and 22. _____

Refer to Example Set 3 to answer questions 19-26.

19. Professor K borrowed _____ from his bank.

20. The rate of interest was _____.

21. The formula for simple interest is I = _____.

22. The rounded principal, P, that Professor K used in this example was _____.

23. 5% = _____ (decimal)

24. The time, t, in this example is _____.

25. I = (60,000)(.05)(1) = _____.

26. The estimated amount of interest Professor K would pay the first year on a $57,000.00 loan is _____.

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Refer to Example Set 3 to work the estimation problems involving interest in the following problems.

27. A company borrowed $189,000.00 at an interest rate of 6%. Which of the following is the best estimate for the amount of interest the company will owe at the end of one year?

_____

(a) $20,000.00 (b) $12,000.00 (c) $5,000.00 (d) not here

28. Estimate the amount of interest that Professor K would pay the first year on a car loan of $26,000.00 at 9% interest. _____

29. Write the **Life Principle**: "_____
_____."

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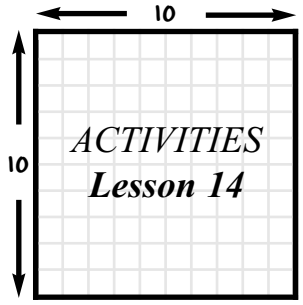


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Percent

Review Interest



You are making progress! ***Answer the following questions. Choose the correct answers or fill in the blanks with words, letters or numbers as each question indicates. Check your answers from the Answer Key. Correct all errors, then complete your next goal.***

1. This lesson concerns _____ interest problems.

2. You can refer to the _____ provided at the end of this chapter for the simple interest formula and time conversions.

3. In the Mathematics Chart, the formula for simple interest is _____.

Refer to Example Set 1 to answer questions 4-15.

4. Professor K borrowed _____.

5. The ***term*** was _____.

6. A period of time at which a loan is due and payable is called the _____ of the loan.

7. In Step 1, the simple interest formula is I = _____.

8. r = 10% = _____(decimal)

9. I = 20,000 • .10 • 20 = _____.

10. If Professor K waits 20 years to ***pay off the loan***, he will owe _____ in interest alone, which is _____ as much as he borrowed in the first place.

11. Since the loan plus interest must be repaid, the total amount Professor K will have paid in 20 years is _____ dollars.

12. Borrowing money is a good way to "get ahead" financially and get out of debt. _____
(a) True or (b) False

13. A statement used to mean repayment of a loan in full is _____ the _____.

14. A company borrowed $200,000 at 10% interest for a term of 10 years. Calculate the simple interest the company would owe on the loan at the end of the term.

_____

(a) $2,000.00 (c) $1,000.00 (e) $100,000.00
(b) $20,000.00 (d) $10,000.00 (f) none of these

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15. A school bond was taken out by a school to build a new gymnasium. The amount of the loan was $80,000.00 and the interest rate was 4%. The term of the loan was 10 years. Calculate the simple interest on the loan at the end of the term. _____

Refer to Example Set 2 to answer questions 16-26.

16. Mrs. K borrowed _____.

(a) $2,000.00 (c) $1,000.00 (e) $100,000.00

(b) $20,000.00 (d) $10,000.00 (f) none of these

17. The rate of interest was _____.

18. Mrs. K paid off the ***note*** in _____ months.

19. Another word used for a loan is _____.

20. In Step 1, the formula for simple interest is _____.

21. In Step 2 the units, _____, divide out.

22. In Step 2, $t = {}^{8}/_{12} =$ _____ = .67.

23. 9% = _____

24. A $12,000.00 loan at a bank is to be paid off in 6 months. The simple interest rate is 5%. Calculate the interest owed at the end of six months. _____

(a) $3,600.00 (b) $3,000.00 (c) $300.00 (d) $36,000.00

25. Calculate the simple interest on an $18,000.00 loan at 3% for 9 months. _____

26. Determine the amount of simple interest owed on a $10,000.00 loan for 3 months at 7% interest. _____

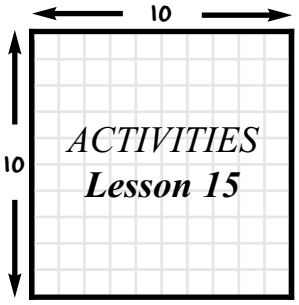
27. Write the **Life Principle**: "_____ _____."

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Predictions

Review Patterns



You are making progress! ***Answer the following questions. Choose the correct answers or fill in the blanks with words, letters or numbers as each question indicates. Check your answers from the Answer Key. Correct all errors, then complete your next goal.***

1. In ***pattern*** problems involving shapes, the number of items necessary to cover all the exposed surfaces of a 3-dimensional object, or sides only of a 2-dimensional object is called a(n) _____.

Refer to Example Set 1 to answer questions 2-8.

2. Professor K drew a(n) _____ on a sheet of paper for his children.

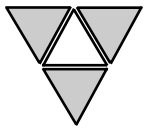
3. Professor K asked his children to determine the number of squares in the _____ ***layer***.

4. The number of squares in the first layer is _____.

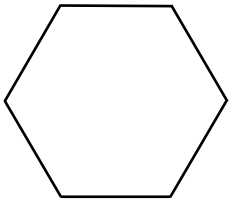
5. The number of squares in the second layer is _____.

6. The number of squares in the third layer is _____.

7. Determine how many congruent triangles the same size as the initial triangle will be in the second layer. You must cover all exposed sides (excluding tops) with each layer. The first layer has 3 triangles as shown. _____

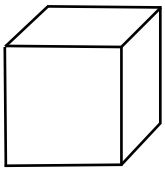


8. Determine the number of hexagons on the first layer. The initial hexagon is shown below. Remember to cover all the exposed sides. _____



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9. Determine how many cubes would be in the first layer. (Remember, each layer has to cover all the exposed faces with a cube congruent to the initial cube.) _____



10. _____ are the faces (sides, top, bottom) of a solid shape that are not covered.

Refer to Example Set 2 to answer questions 11-15.

11. Professor K shows you how to determine a(n) _____ to calculate the number of squares in the *n*th layer of a pattern of shapes.

12. Professor K's children made a(n) _____ or chart to see the pattern in the numbers.

13. Professor K's children determined that the number of items in the layer could be multiplied by _____ to calculate the number of shapes in each layer.

14. The formula for calculating the number of shapes in layer *n* is _____.

15. Calculate the number of shapes in the 6th layer. _____

Refer to Example Set 3 to answer questions 16-19.

16. Professor K's children showed Professor K a(n) _____ of numbers.

17. Professor K made _____ attempts to determine the formula to calculate the *n*th term of the sequence.

18. The formula for the *n*th term of this sequence is _____.

19. Calculate the 6th term of this sequence. _____

Refer to Example Sets 2 and 3 to answer questions 20-24. Determine the formula for the *n*th term of each sequence of numbers.

20. 0, 1, 2, 3, 4, … _____

(a) $n - 1$ (b) $1 + n$ (c) $n - 0$ (d) $n + 2$ (e) $n + 1$

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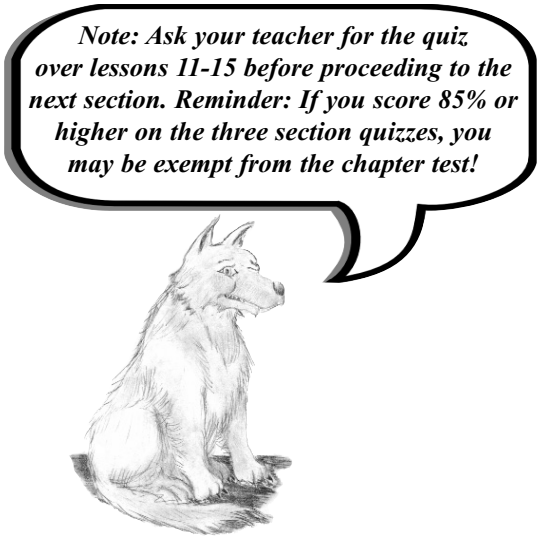
21. 2, 4, 6, 8, 10, … _____
(a) n (b) $n + 1$ (c) $n + 2$ (d) $n + 3$ (e) $2n$ (f) $3n$

22. 1, 4, 9, 16, 25, … _____
(a) $n + 1$ (b) $2n + 1$ (c) $2n - 1$ (d) $3n - 2$ (e) n^2 (f) none of these

23. 0, 3, 8, 15, 24, … _____

24. 3, 4, 5, 6, 7, … _____

25. Write the **Life Principle**: "_____
_____."



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Intermediate Math Skills

Mathematics Charts

LENGTH - ENGLISH SYSTEM

12 inches	=	1 foot
3 feet	=	1 yard
5.5 yards	=	1 rod
320 rods	=	1 mile
1,760 yards	=	1 mile
5,280 feet	=	1 mile

VOLUME - ENGLISH SYSTEM

1 tablespoon, Tbsp, T	=	3 teaspoons, tsp
1 cup, c	=	16 tablespoons, Tbsp, T
1 pint, pt	=	2 cups, c
1 quart, qt	=	2 pints, pts
1 gallon, gal	=	4 quarts, qts

WEIGHT - ENGLISH SYSTEM

1 pound, lb	=	16 ounces, oz
1 hundredweight, cwt	=	100 pounds, lbs
1 ton	=	20 hundredweight, cwt
1 ton	=	2000 pounds, lbs

LENGTH - METRIC SYSTEM

1 meter	=	1,000 millimeters
1 meter	=	100 centimeters
1 kilometer	=	1,000 meters
1 centimeter	=	10 millimeters

VOLUME - METRIC SYSTEM

1 liter	=	1,000 milliliters
1 liter	=	100 centiliters
1 kiloliter	=	1,000 liters
1 centiliter	=	10 milliliters

WEIGHT - METRIC SYSTEM

1 gram	=	1,000 milligrams
1 gram	=	100 centigrams
1 kilogram	=	1,000 grams
1 centigram	=	10 milligrams

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PERFECT SQUARES

$\sqrt{1}=1$	$\sqrt{25}=5$	$\sqrt{81}=9$	$\sqrt{169}=13$
$\sqrt{4}=2$	$\sqrt{36}=6$	$\sqrt{100}=10$	$\sqrt{196}=14$
$\sqrt{9}=3$	$\sqrt{49}=7$	$\sqrt{121}=11$	$\sqrt{225}=15$
$\sqrt{16}=4$	$\sqrt{64}=8$	$\sqrt{144}=12$	$\sqrt{256}=16$

PERFECT CUBES

$\sqrt[3]{1}=1$	$\sqrt[3]{-8}=-2$	$\sqrt[3]{64}=4$	$\sqrt[3]{-125}=-5$
$\sqrt[3]{-1}=-1$	$\sqrt[3]{27}=3$	$\sqrt[3]{-64}=-4$	$\sqrt[3]{216}=6$
$\sqrt[3]{8}=2$	$\sqrt[3]{-27}=-3$	$\sqrt[3]{125}=5$	$\sqrt[3]{-216}=-6$

$$P = \frac{\text{the number of elements in the set containing favorable outcomes}}{\text{the number of elements in the sample set}}$$

$$Midpoint = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$$

FORMULAS

Surface Area	Area	Volume	Perimeter/ Circumference	Others
Sphere: $A_s = 4\pi r^2$	**Triangle:** $A = {}^1\!/_2 bh$	**Sphere:** $V = {}^4\!/_3 \pi r^3$	**Perimeter of a Rectangle:** $P = 2w + 2l$	**Pythagorean Theorem:** $c^2 = a^2 + b^2$
Cylinder: $A_s = 2\pi rh + 2\pi r^2$	**Rectangle:** $A = l \times w$	**Cone:** $V = {}^1\!/_3 \pi r^2 h$	**Circumference of a Circle:** $C = 2\pi r$ or $C = \pi d$	**Convert to Fahrenheit:** $F = {}^9\!/_5 C + 32$
Cube: $A_s = 6s^2$	**Circle:** $A = \pi r^2$	**Rectangular Prism:** $V = l \times w \times h$		**Convert to Celsius:** $C = {}^5\!/_9 (F - 32)$
Lateral Surface Area of a Cone: $A_{ls} = \pi rl$	**Trapezoid:** $A = {}^1\!/_2 (b_1 + b_2)h$	**Square Pyramid:** $V = ({}^1\!/_3) lwh$		**Distance:** $d = r \bullet t$
		Triangular Prism: $V = {}^1\!/_2 bhl$		**Slope:** $y = mx = b$
		Cylinder: $V = \pi r^2 h$		**Simple Interest:** $I = prt$

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Mathematics Charts

TIME CONVERSIONS

1 week = 7 days
1 year = 12 months

CONVERSIONS

English to Metric	
1 ounce (oz)	28.35 grams (g)
1 pound (lb)	454 grams (g)
1 ton (T)	907.2 kilograms (kg)

Metric to English	
1 gram (g)	.035 ounce (oz)
1 kilogram (kg)	2.2 pounds (lb)
1 metric ton (mt)	2200 pounds (lb)

English to Metric	
1 cubic inch	16.39 cubic cm
1 gallon	3.785 liters
1 cubic foot	28.316 liters
1 quart	.946 liters

Metric to English	
1 cubic cm	.061 cubic inch
1 cubic meter	35.315 cubic feet
1 liter	1.05 quarts
1 liter	.264 gallon

English to Metric	
1 inch	2.54 cm
1 foot	0.3048 meter
1 yard	0.9144 meter
1 mile	1.6 km

Metric to English	
1 centimeter	0.3937 in.
1 meter	39.37 in.
1 meter	1.09 yds
1 kilometer	0.6213 mile

AREA CONVERSIONS

1 square centimeter = 0.155000 sq in.
1 square meter = 10.763910 sq ft
1 square inch = 645.16 sq mm
1 square foot = 0.09290304 sq meter
1 square yard = 0.836127 sq meter
1 square foot = 144 sq in.

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