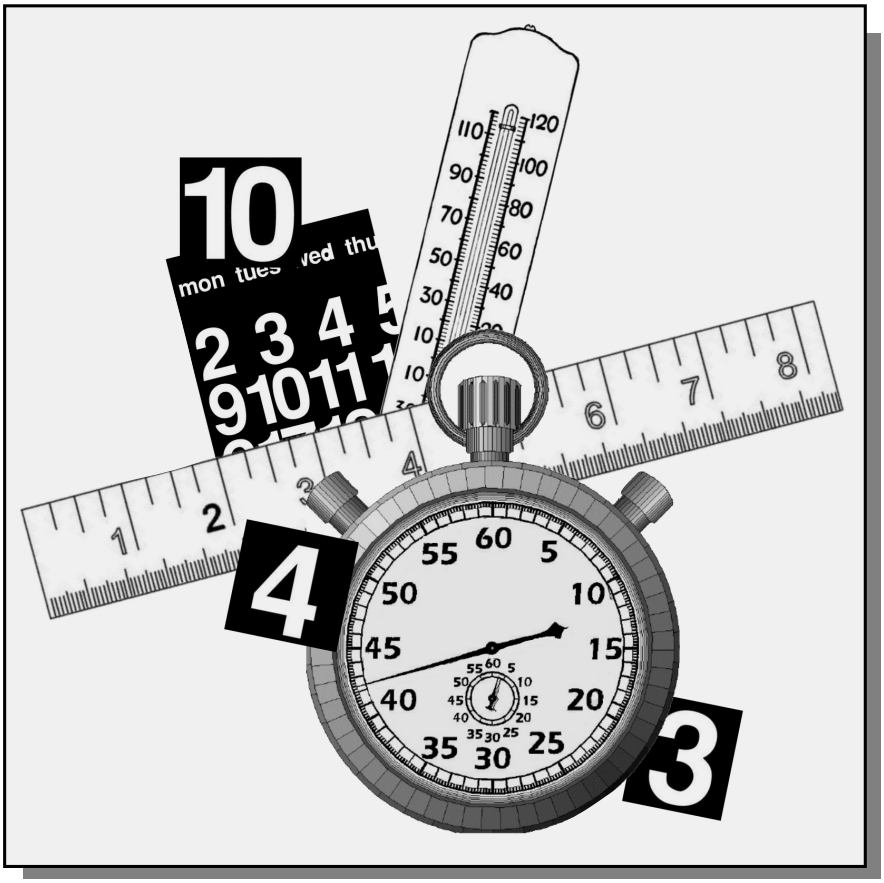
Basic Math Skills

Activities



Chapter 6

BMS: 76040 Revision: 030208

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Basic Math Skills

Chapter 6

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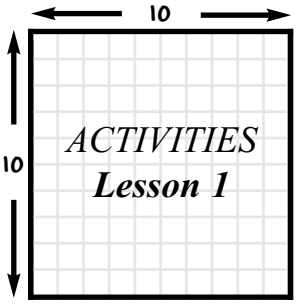
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Calculations

Calculate (Add & Subtract)



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. _____ man first counted by various methods.

2. Some civilizations tied _____ in ropes to keep track of the count.

3. *Adding* meant tying _____ knots in the rope; *subtracting* meant _____ some of the knots.

4. Another method of counting was with "_____" figures.

5. The first "***calculator***" or adding machine was the Chinese _____.

6. A(n) _____ is a device used for making calculations.

7. The ***abacus*** allowed the Chinese to add and subtract _____.

8. Someone who was _____ at using an abacus could calculate problems very rapidly.

9. Later mathematicians developed a sliding "stick" or _____.

10. A slide rule allowed for more _____ calculations, such as multiplication, division, and raising numbers to a power to be performed.

11. _____-powered and later _____-powered adding machines and cash registers were used in most businesses.

12. A(n) _____ is a device used for computing data.

13. _____ is information, especially numerical information.

14. Early computers consisted of _____ of tubes and wires.

15. _____ was saved on tapes in early computers.

16. Texas Instruments Incorporated™ developed the _____.

17. The transistor and later the _____ allowed calculators and ***computers*** to do more in less time and less space.

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18. Calculators and computers therefore became much _____ and yet process information and do calculations at a high rate of speed.

19. This chapter deals with using _____.

20. Working problems with a calculator makes many of the operations less _____ and time consuming.

21. Some of the keystrokes are specific to the TI-83, but most scientific calculators will operate in much the _____ manner.

22. If a problem arises, always refer to the _____ manual for your particular calculator for assistance.

23. The calculator has a number pad surrounded by _____ keys.

24. Keys on a calculator that allow you to perform mathematical operations are called _____ keys.

25. _____ allow you to perform various mathematical operations on numbers including addition, subtraction, multiplication and division.

Refer to Example Set 1 to answer questions 26-29.

26. Press the _____ sign ***function key*** between each number being added in an addition problem.

27. The "_____" function key tells the calculator to perform the operation(s).

28. 125 + 375 = _____.

29. To add numbers containing more digits simply type in all the digits of each number before pressing the _____ key.

30. Always look at the ***LCD*** screen before pressing the _____ (function, enter) key to make sure the number was typed in correctly.

31. If an error in typing has occurred, use the function key labeled with a _____ and retype the correct digit(s).

32. Subtraction of numbers using the TI-83 is accomplished in the _____ manner as addition of numbers.

Refer to Example Set 2 to answer questions 33-36.

33. Press the _____ sign function key between numbers being subtracted.

34. 55 - 25 = _____.

35. 456 - 123 = _____.

36. The TI-83 will do multiple calculations in one _____ of the "enter" key.

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37. You should _____ along with the problems in the examples to become familiar with using the TI-83 to perform various _____.

Refer to Example Set 3 to answer questions 38-39.

38. In a), the first function or operation key pressed is the _____ key.

39. 75 - 25 - 10 + 453 = _____.

Work the following addition and subtraction problems with the aid of your calculator. Place each answers on the blank provided.

40. 45 + 68 = _____

41. 87 + 95 = _____

42. 587 + 23 = _____

43. 23,654 + 5,874,125 = _____

44. 62 - 45 = _____

45. 759 - 524 = _____

46. 3,879 + 674 - 432 = _____

Choose the correct answer.

47. 845 + 563 - 752 + 2,000 = _____

(a) 4,160 (c) 2,656

(b) 1,530 (d) 2,563

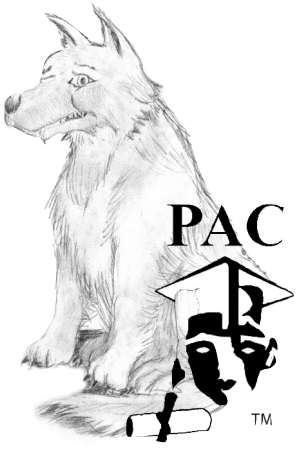
48. 5,248 - 325 + 699 - 527 + 3,200 = _____

(a) 8,295 (c) 9,999

(b) 8,945 (d) 9,674

49. Write the **Life Principle.** "_____ _____."

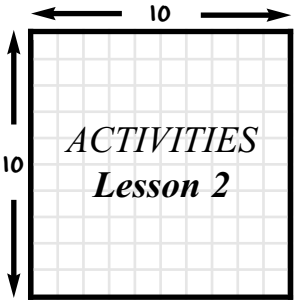
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Calculations

Calculate (Multiply & Divide)

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. Describing mathematical calculations can be very _____.

2. Many of the symbols mathematicians use are nothing more than _____ for describing calculations.

3. Calculators and computers store and process information, and these devices make the mathematician's job much _____.

4. Long, ***monotonous*** and complicated calculations can be performed with relative ease compared to doing calculations by _____.

Refer to Example Set 1 to answer questions 5-9.

5. Press the "_____" key between numbers you want to multiply.

6. The _____ key tells the calculator to perform the operation(s).

7. 120 • 375 = _____.

8. The * symbol on calculators and computers indicates _____.

9. To multiply numbers containing more digits, simply type in all the digits of each number before pressing the _____ key.

10. Always look at the _____ before pressing the function key to make sure the number was typed in correctly.

11. If an error in typing has occurred, use the function key labeled with a _____ and retype the correct digit(s).

12. _____ of numbers using the TI-83 is accomplished in the same manner as multiplication of numbers.

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

13. Press the _____ function key between numbers you want to divide.

14. The symbol, /, will appear on the _____ screen to indicate division.

15. 369 ÷ 123 = _____.

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16. As in multiplication, to divide numbers containing more digits simply type in all the digits of each number before pressing the _____ key.

17. The TI-83 will do multiple calculations in one _____ of the "enter" key regardless of the operations.

Refer to Example Set 3 to answer questions 18-20.

18. In the problem 24 ÷ 3 • 5, all the numbers and operations were typed into the calculator before the _____ key was pressed.

19. The, /, symbol on calculators and computers indicates _____.

20. 75 ÷ 25 • 10 ÷ 2 = _____.

Use your calculator to work the problems below. Place each answer on the blank provided.

21. 50 ÷ 2 - 25 = _____

22. 25 ÷ 3 = _____

23. 800 - 500 + 4 • 35 = _____

24. 45 • 3 ÷ 6 = _____

25. 986 ÷ 2 • 5 ÷ 4 + 3 = _____

(a) 819.25 (c) 916.25
(b) 619.25 (d) 169.25

26. 18 - 9 • 2 = _____

(a) 4.5 (c) 4
(b) 0 (d) 13.5

27. 555 • 3 = _____

28. 3456 ÷ 2 = _____

29. 75 ÷ 5 = _____

30. Write the **Life Principle.** "_____
_____."

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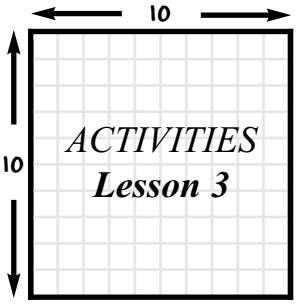
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Calculations

Calculate (Powers & Roots)



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. Mathematicians do not want to waste _____ writing multiplication of the same number over and over.

2. A shorthand method of writing some multiplication problems was developed, called raising a number to a _____.

3. A calculator makes difficult calculations much _____ and quicker.

Refer to Example Set 1 to answer questions 4-12.

4. The _____ key instructs the calculator to perform the operation(s).

5. The function key on a scientific calculator to square a number is labeled _____.

6. 55^2 = _____ **7.** 120^2 = _____

8. To square numbers containing more digits, simply type in all the digits of the number before pressing the _____ key.

9. Always _____ at the LCD screen before pressing the function key to make sure the number was typed in correctly.

10. Use the _____ (←) key to correct mistakes.

11. You can extract the _____ root of a number using the TI-83.

12. Another way of saying "finding" or "***extracting the square root***" of a number is to "_____" the square root.

Refer to Example Set 2 to answer questions 13-17.

13. The yellow function key on a scientific calculator for performing functions marked in yellow is labeled _____.

14. You must press the _____ key before pressing the x^2 key to perform the square root function.

15. The symbol for square root is _____.

16. The square root of 121 is _____.

17. The TI-83 will raise numbers to powers other than _____.

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Refer to Example Set 3 to answer questions 18-24.

18. A _____ is a screen on a calculator with a list of possible options.

19. To locate the operation for cubing a number you must first press the _____ key.

20. The cube function is option # _____ on the menu.

21. 3^3 = _____.

22. To raise a number to any power you can press the _____ (^) key.

23. 4^4 = _____.

24. Extracting a root means to find the equal _____ of a number.

Refer to Example Set 4 to answer questions 25-28.

25. To calculate the cube root of a number first press the _____ key.

26. The cube root function is option # _____ in the menu.

27. After pressing the option # key, you must then type in the number for which you wish to calculate the _____ root.

28. To extract a root other than two or three, you must select option # _____ in the menu.

Use your calculator to work the following power and root problems. Write your answers on the blanks provided.

29. 34^2 = _____ **30.** 2^7 = _____ **31.** 8^3 = _____

32. 5^4 = _____ **33.** 16^2 = _____ **34.** 90^3 = _____

35. $\sqrt{169}$ = _____ **36.** $\sqrt[5]{32768}$ = _____ **37.** $\sqrt[3]{4913}$ = _____

38. $\sqrt[7]{128}$ = _____ **39.** $\sqrt{6400}$ = _____ **40.** $\sqrt[8]{10077696}$ = _____

41. $\sqrt{625}$ = _____ **42.** 57^3 = _____

43. Write the **Life Principle.** "_____
_____."

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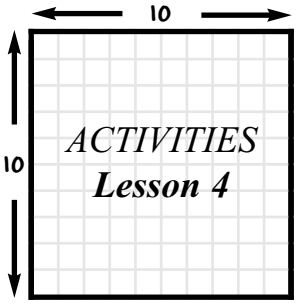
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Calculations

Calculate (Percents)



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. Finding the _____ of numbers is a mathematical operation used daily in some way by almost everyone.

2. ***Percents*** are especially important in the world of _____.

3. Percent means *per* _____.

4. Banks charge interest on _____ and pay interest on savings accounts based on percent.

5. Stores figure _____, _____ and _____ using percent.

6. The amount (percentage) that a price is reduced on a product is the _____.

7. The amount of money a store charges above the cost of an item is the _____ percentage.

8. The difference between the business cost of an item and the price for which business sells the item to the customer for is called the _____.

9. Government entities calculate _____ rates on percentages.

10. In school, the grade on a test is usually scored on the basis of a total of _____ points.

11. The formula for simple interest is _____ = _____.

12. The amount of money borrowed is called the _____.

13. The percentage charged on money borrowed is the _____.

14. The length of a loan is known as _____ in the interest formula.

Refer to Example Set 1 to answer questions 15-18.

15. Roland's note was due to be paid in _____ years.

16. The principal or amount of money Roland borrowed was _____.

17. The rate was _____%.

18. The total interest Roland paid was _____.

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Look at Example Set 2 to answer questions 19-22.

19. Jo Ann placed _____ in her savings account.

20. Jo Ann planned to retire in _____ years.

21. The bank was going to pay Jo Ann an interest rate of _____% on her money.

22. Jo Ann would earn _____ on her savings in one year.

Refer to Example Set 3 to answer questions 23-27.

23. Karla worked at a _____ store.

24. Karla was instructed to ***discount*** the dresses by _____%.

25. To calculate percentages you must move the decimal point _____ places to the left.

26. Pressing the key labeled _____ completes the calculation process.

27. To determine the final selling price of the garment after the 25% discount you must _____ the discount from the original price.

Use your calculator to work the following percentage problems.

28. Marcus's mother sent him to the store to purchase a few items. Marcus took his calculator along so that he would know what the total cost of the items would be before he checked out at the register. Marcus purchased four items at a cost of $4.25, $3.50, $1.99, and $12.45. Marcus added these numbers together on his calculator and then calculated the sales tax. He knew that the local sales tax rate was 8%. Marcus calculated the sales tax to be $_____. He then added the sales tax to the combined purchase price of the four items and determined his total bill would be $_____.

29. Jo Ann's brother, Jim, invested $4,500.00 for 10 years in a mutual fund with a 9.95% rate of return. At the end of the ten years Jim had a total of $_____. (principal + interest)

(a) $4,477.50 (b) $4,500.00 (c) $995.00 (d) $8,977.50

30. Roland took the money he borrowed and started a small business. In the first year he made a profit of $15,000.00. Roland had to pay income tax on this money at a rate of 20%. Roland calculated his income tax to be $_____. (Use the simple interest formula.)

(a) $300.00 (b) $3,000.00 (c) $30.00 (d) $4,500.00

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31. A discount on a new car selling for $12,000.00 was listed in the newspaper to be 35%. Karla wanted to purchase the car. By using her savings, Karla avoided interest payments. Karla would have to pay $_____ for the car.

32. Write the **Life Principle**. "_____ _____."

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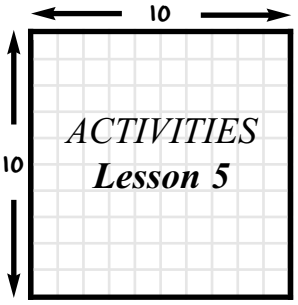
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Calculations

Calculate (Area & Volume)



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 availabilities and capabilities of calculators and computers _____ dramatically in the last half of the 1900s.

2. Calculations of problems containing the number, π, (became) _____ difficult with the use of calculators.
(a) more (b) less (c) remained the same

3. The value of π is a(n) _____.

4. Using numbers with more than three decimal places, one finds it difficult to perform calculations _____.

5. With the aid of calculators and computers, calculations can be made with the value of π containing _____ of decimal places.

6. In reviewing the calculation of areas and volumes, the calculator will _____ your calculations.

Matching

7. _____ Area of a triangle	(a) $V = \pi r^2 h$
8. _____ Volume of a rectangular prism	(b) $A = w \times l$
9. _____ Circumference of a circle	(c) $V = \frac{1}{3}\pi r^2 h$
10. _____ Volume of a pyramid	(d) $A = \pi r^2$
11. _____ Surface area of a sphere	(e) $V = w \times l \times h$
12. _____ Perimeter of a rectangle	(f) $P = 2w + 2l$
13. _____ Area of a circle	(g) $A = \frac{1}{2}bh$
14. _____ Area of a rectangle	(h) $A_S = 4\pi r^2$
15. _____ Volume of a cone	(i) $C = \pi d = 2\pi r$
16. _____ Volume of a sphere	(j) $V = \frac{1}{3}wlh$
17. _____ Volume of a cylinder	(k) $V = \frac{4}{3}\pi r^3$

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Refer to Example Set 1 to answer questions 18-20.

18. You must _____ the appropriate formula to work area and volume problems.

19. This problem requires the formula for the _____ of a rectangle.

20. The last key to press on the calculator to finish the problem is the key labeled _____.

Refer to Example Set 2 to answer questions 21-23.

21. The radius of the spherical tank mentioned in the problem is _____ feet.

22. The formula used in the problem is the formula for the volume of a sphere which is $V =$ _____.

23. The radius of the sphere is raised to the power of _____.

24. The TI-83 stores the value of pi, π, to _____ decimal places.

25. The Greek letter, π is written in yellow above the _____ (^) key.

26. The value of π is accessible by first pressing the _____ key.

27. The number, 40^3, was placed in _____.

28. Another method to signify division is by use of a _____ and therefore, $^4/_3$ can be calculated by entering $4 \div 3$ into the calculator.

29. Often it is important to set off numbers and operations on them with parentheses so the calculator will perform the operation in the parentheses _____ and then the other operations.

30. Calculators and computers follow the rules for the _____ of _____.

31. A_S is a symbol for the _____ of a solid shape.

32. The formula for calculating the surface area of a cylinder is: $A_S =$ _____.

Refer to Example Set 3 to answer questions 33-36.

33. The radius of the cylinder is _____ cm.

34. The height of the cylinder is _____ cm.

35. The corresponding numbers must be _____ into the formula.

36. The ***surface area*** of a cylinder with radius of 4 cm and height of 9 cm is _____ sq cm.

37. The parentheses around 9 + 4 is of _____ importance so the calculator will perform the addition of 9 + 4 first.

38. Placing _____ symbols where needed is a good habit to acquire, even though the TI-83 does not always require it.

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Use your calculator to work the following area and volume problems. Write each answer on the blank provided or choose the best answer from the list.

39. Calculate the area of a triangle with a base of 4 inches and a height of 10 inches.

_____

40. Calculate the volume of a square pyramid with a base width and length of 6 inches each and a height of 12 inches. _____

(a) 14.4 cubic inches (c) 1,440 cubic inches

(b) 144 cubic inches (d) 216 cubic inches

41. The diameter of the Sun is approximately 864,100 miles. The surface area is _____. (Write exactly what is shown on the LCD screen for the answer.)

(a) 2.345729248E12 (c) 2.344540063

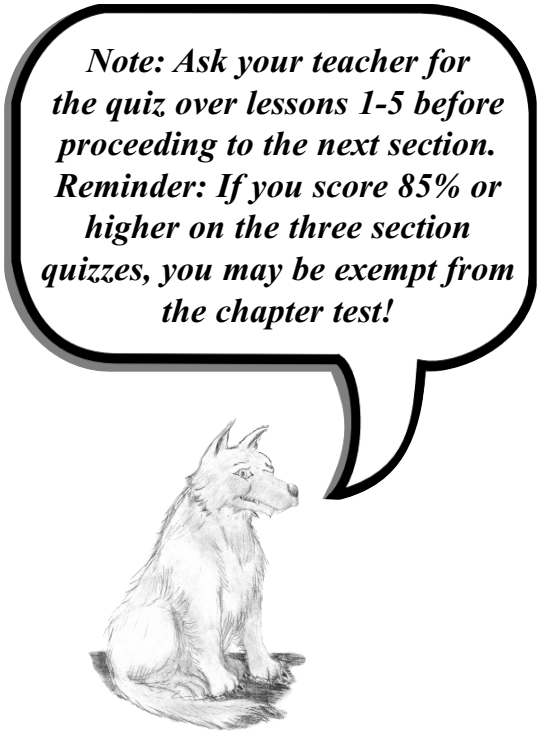
(b) $2344540063 \times 10^{12}$ (d) none of these

42. A painter was contracted by a local water cooperative to paint a cylindrical water tower. The water tower was 30 feet tall and had a diameter of 25 feet. The surface area of the water tower was _____ sq ft.

(a) 8639.379797 (c) 337.942194

(b) 3337.942194 (d) none of these

43. Write the **Life Principle.** "_____ _____."



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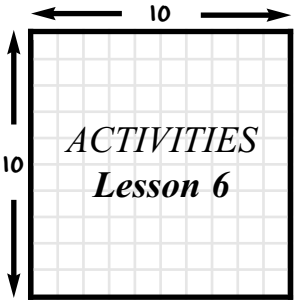


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Calculations

Calculate (Scientific Notation)



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. "_____ is the mother of invention."

2. Mathematicians constantly look for ways to make solving problems _____.

3. An important part of problem solving is making _____.

4. _____ is a shorthand method for writing very large or very small numbers.

5. ***Scientific notation*** makes working with very large or very small numbers more _____.

6. The invention of _____ and computers were a big help for making _____.

7. Before calculators and computers, mathematicians developed _____.

8. The TI-83 will only show _____ digits of an answer.

9. Numbers of more than ten digits are automatically changed to _____.

10. Answers of more than ten digits containing decimals are _____ to the nearest decimal place.

Refer to Example Set 1 to answer questions 11-15.

11. The problem is a(n) _____ problem containing numbers written in scientific notation form.

12. The *2nd* key is pressed because the scientific notation operator, EE, is written in _____ (color).

13. The _____ key is pressed because the scientific notation operator is written in yellow above the black key on the face of the calculator.

14. The _____ key is pressed at the end of the process to perform the calculations.

15. EE is the calculator _____ for scientific notation in multiplying a number times ten raised to a power.

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16. The answer in Example Set 1 was not written in scientific notation form because the answer did not contain more than _____ digits.

Refer to Example Set 2 to answer questions 17-19.

17. The problem is a _____ problem containing numbers written in scientific notation form.

18. The answer appears as _____ on the LCD screen.

19. The answer is written on your paper as _____.

Refer to Example Set 3 to answer questions 20-24.

20. The problem contains both _____ and division operations on numbers written in scientific notation form.

21. The answer contains _____ digits.

22. The parentheses are of _____ importance to this problem.

23. Parentheses always must be placed in the _____ locations.

24. The key marked (-) signifies a _____ number, not the operation of subtraction.

Work the following problems using your scientific calculator. Write each answer in proper scientific notation form on the blank provided.

25. $(4.321 \times 10^5) + (6.7 \times 10^9) - (5.888 \times 10^4) =$ _____

26. $(3.2 \times 10^{12}) + (2.111 \times 10^3) =$ _____

27. $(5.98765 \times 10^{-3})(4.123 \times 10^{35}) =$ _____

28. $(3.741 \times 10^8)(4.9045269 \times 10^{-6}) =$ _____

29. $\dfrac{(4.6\times10^{7})(3.75\times10^{4})}{4.6\times10^{7}} =$ _____

30. $\dfrac{(3.5\bullet10^{4})(6.75\bullet10^{-24})}{2.7\ \ 10} =$ _____

Work the following problems and choose each correct answer from the list.

31. The output of energy from the Sun is approximately 8.947×10^8 calories per minute for each square meter. The number of calories generated by the Sun in one hour from one square meter is _____ calories. (60 minutes in an hour.) Be sure to express your answer in scientific notation form.

(a) 5.3682×10^{10}
(b) 53682×10^6
(c) 5.3682×10^9
(d) 5.3682×10^{-10}

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32. The distance of the Sun from the Earth is approximately 9.45×10^7 miles. A spacecraft launched toward the Sun by NASA from Florida travels at a rate of 18,000 miles per hour. It will take the spacecraft _____ hours to reach the Sun. (Remember the distance formula, $d = rt \rightarrow t = {}^{d}/_{r}$.)

(a) 1.701×10^{12}

(b) 5.25×10^2

(c) 5.250×10^3

(d) none of the above

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

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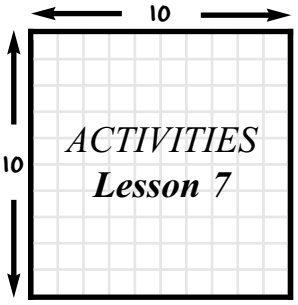
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Calculations

Calculate (Balancing a Checkbook)



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. Roland's bank informed him that he had a(n) _____.

2. A(n) _____ is an attempt to draw more money from a bank than is in your checking account.

3. Roland had a _____ account.

4. A ***check*** is a _____ signed by the owner for transfer of funds.

5. Roland could not believe that he had _____ the amount of money in his account.

6. Roland wrote a _____ because of this miscalculation.

7. A check that is not backed by money in a bank account is called a _____.

8. Roland looked at his _____ and compared his records with that of the bank.

9. A ***ledger*** is a record of _____ transactions.

10. Using his calculator, Roland recalculated the _____ in his checking account.

11. The amount of money remaining in an account is called the _____ of the account.

12. Before writing a check you must have put _____ into your account.

13. Deposit means to _____ money into an account.

14. Before making entries in a ledger, you must first _____ or make a deposit.

15. The different _____ of a check are shown in Example Set 1.

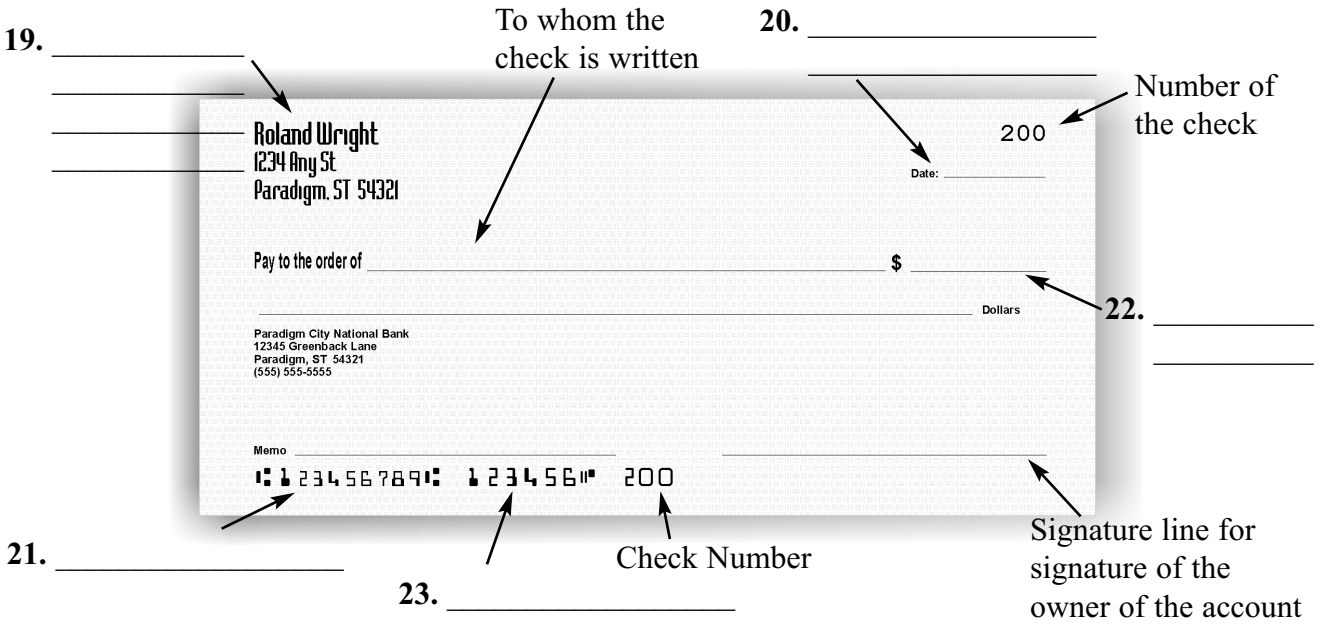
16. Looking at Example Set 1, the _____ line is for the signature of the owner of the account.

17. To whom the check is written, is placed on the line labeled, "_____."

18. The _____ of the check is found in the upper right-hand corner of the check.

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Name the following parts of a check.



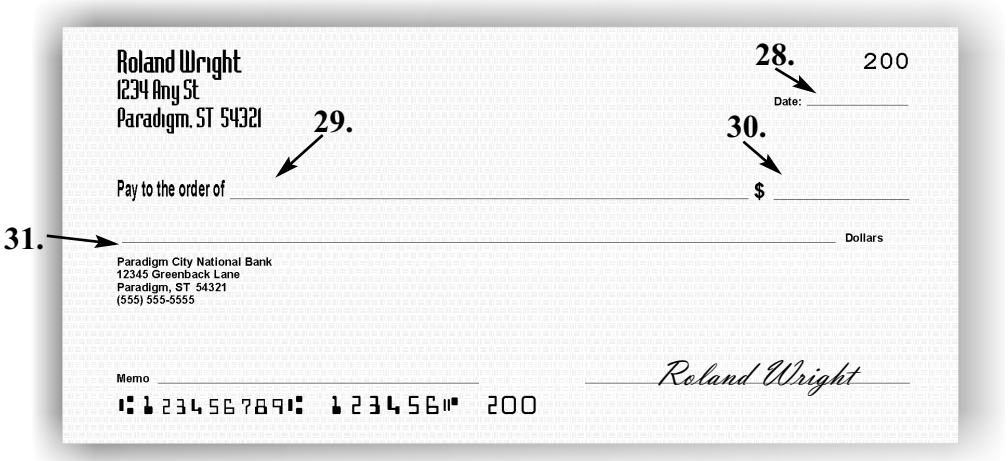
24. In Example Set 1 the line marked "MEMO" is sometimes labeled, "_____."

25. The "MEMO" line is used to make a notation of the _____ for writing the check.

26. You should write out in _____ the amount of the check in words, with *cents* being added in _____ form.

27. At the end of the fraction, a line should be drawn to the word "dollar," to prevent someone _____ words later to the amount.

Help Roland fill in the check below with the following information: to the PAC Gas Co. in the amount of $125.54 on February 2, 2002 for his natural gas bill at his house. (28-31)



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32. A(n) _____ is a book for keeping a record of credits and debits to an account.

33. A business keeps a record of income and expenses in a ledger to determine _____.

34. Money added to an account is called a _____.

35. A(n) _____ is money subtracted from an account.

36. A checkbook _____ is an example of a ledger.

In the checkbook register below, fill in the following deposits and debits in the proper places. Then, with the aid of your calculator, calculate the balance of the account. After you have calculated the balance for each new entry, write the balance on the line beside questions 37-41.

Roland deposited his paycheck in the amount of $457.65 on January 3, 2002. On the same day, he wrote a check numbered 301 to the ACE hardware store for $35.40, and then he went across town to the Jeff's Grocery and purchased a weeks supply of food for $84.33. Two days later, Roland paid his electric bill of $212.99 at the Any Town Electric Co with a check numbered 303. On January 11, Roland deposited another $50.00 he earned picking up trash for the city at a local park.

Number	Date	Description of Transaction	Payment/Debit	Deposit/Credit	Balance
	1/1	Balance Forward			25.36

37. _____

38. _____

39. _____

40. _____

41. _____

42. The mathematical operation(s) performed in questions 37-41 were:

(a) addition (c) multiplication (e) a and b only

(b) subtraction (d) division (f) a and c only

43. Write the **Life Principle.** "_____ _____."

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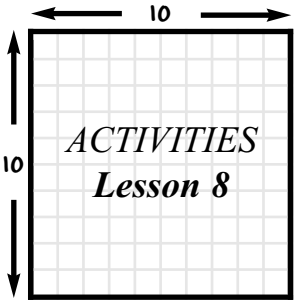
Name: _____

Date: _____ Grade: _____



Calculations

Calculate (Mean & Median)



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. People use averages to _____ ***data***.

2. Averages help us to _____ groups of numbers.

3. Averages are important to ***governmental*** agencies for the formulation of _____, _____ and procedures.

4. Increases in taxes are reported based on what the _____ tax increase will be.

5. Calculators make the calculation of the _____ of a list of numbers much easier.

6. The ***mean*** is another word for _____ when referring to data.

Refer to Example Set 1 to answer questions 7-12.

7. The list shown is a list of _____ scores.

8. Carlos wants to _____ his test scores.

9. _____ of all the test scores is the first operation required in calculating averages.

10. To calculate averages, the sum of all the data must be _____ by the number of items added.

11. Carlos had _____ test scores.

12. Carlos' average for math class was _____%.

Refer to Example Set 2 to answer questions 13-22.

13. Temperatures for this problem were recorded in _____.

14. The temperatures were gathered for a time period of _____.

15. The sum of all the temperatures was divided by _____ to obtain the average temperature for the week.

16. The average was _____ to the nearest whole number.

17. The middle of a data set is called the _____.
(a) mean (b) median (c) mode (d) range

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18. The ***median*** temperature for the week was _____.

19. The _____ is the number that occurs most often in the list of data.

20. The temperature that was observed the most often (the ***mode***) was _____.

21. To determine the _____ of a data set, the smallest data must be subtracted from the largest.

22. The ***range*** of temperatures for this week in Death Valley was _____.

23. The middle of a highway is sometimes called the _____.
(a) mean (b) median (c) mode (d) yellow line

Refer to Example Set 3 to answer questions 24-27.

24. The set of data contains _____ numbers.

25. Sometimes the middle two numbers of a data set must be _____ to calculate the median.
(a) added (b) subtracted (c) averaged (d) synchronized

26. The median for this list of numbers is _____.

27. The mode for this list of numbers is _____.

28. Eighty-four is the _____ for this list of numbers.
(a) mean (b) median (c) mode (d) range

Calculate the mean, mode, median and range in the following data sets for questions 29-31. Write your answers on the blanks provided.

29. {35, 23, 4, 67, 88, 19, 23}
mean _____; median _____; mode _____; range _____

30. {1, 2, 3, 9, 5, 8, 4, 6, 7, 10, 1, 1}
mean _____; median _____; mode _____; range _____

31. {11, 13, 15, 21, 19, 30, 111, 13, 22}
mean _____; median _____; mode _____; range _____

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32. The first Olympic Torch Relay, held during the 1936 Berlin Games when the flame traveled from Olympia, Greece to Berlin, Germany lasted 12 days and covered 1,910 miles across seven countries. The average distance covered each day was _____ miles.

33. For the 2002 Winter Olympic Games held in Salt Lake City, Utah, approximately 11,500 torchbearers traveled more than 13,500 miles for 67 days. The average number of miles covered per day was _____ miles.
(a) 171.6 miles (b) 1.2 miles (c) 201.5 miles (d) 29.9 miles

34. If 180 torchbearers carried the flame about 208 miles over the course in 12 hours, then the average number of miles each torchbearer carried the torch was _____.
(a) 17.3 miles (b) .9 miles (c) 1.16 miles (d) 15 miles

35. Write the **Life Principle.** "_____
_____."

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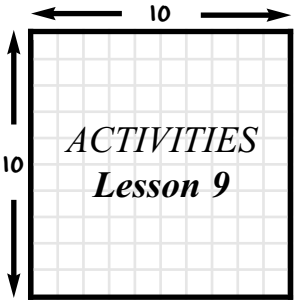
Name: _____

Date: _____ Grade: _____



Calculations

Calculate (Conversion Factors)



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. Early man did not have to worry too much about _____ calculations and measurements.

2. When working with numbers and measurements their _____ could be inexact.

3. The _____ are examples of ***precise*** angles and measurements.

4. With the onset of the _____ in the eighteen hundreds and the space age of the late twentieth century, _____ calculations became of extreme importance.

5. The _____ missions to the Moon had to use precise calculations.

6. Even a slight miscalculation leaving the earth would result in a great ***discrepancy*** _____ of miles later.

7. Such a miscalculation could have caused them to totally miss the _____.

8. Precise measurements in ***sophisticated*** _____ of war are of extreme importance.

9. Conversions in this lesson are shown with more _____ than those presented earlier.

10. Previously, conversion factors were _____ to make the calculations easier.

11. Table 9.1 shows the conversion factors for different measures of _____.

Refer to Table 9.1 and Example Set 1 to answer questions 12-17.

12. Professional football teams want to know how fast a player can run the _____ dash.

13. The field was marked off in _____ instead of yards.

14. 12 inches = _____ foot

15. 3 feet = _____ yard

16. 1 meter = _____ inches

17. 40 yards = _____ meters

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18. Conversions are set up so that units _____ out by placing them in the appropriate places in the numerator and denominator.

19. Setting the conversions up properly insures that the multiplications and divisions are performed properly to obtain the _____ conversion.

20. You should look back to Chapter _____ to review conversion factors.

Refer to Table 9.1 and Example Set 2 to answer questions 21-23.

21. 1 meter = _____ cm

22. 1 in = _____ cm

23. 36.575 meters = _____ inches

Refer to Table 9.1 and Example Set 3 to answer questions 24-28.

24. The speed at which our solar system is moving through space is estimated to be _____ miles per minute.

25. One mile = _____ km

26. One hour = _____ minutes

27. The units, miles and minutes, _____ out.

28. Our solar system is moving through space at a speed of _____ (round to the nearest *thousandth*) km per hour.

29. The word, _____, means a fraction or division.

30. The units in the _____ were moved around to help understand the division of the units.

31. The order in which numbers are multiplied does not change the answer. _____
(a) True or (b) False

Work the following conversion problems. Set up each problem correctly in the space provided and use your calculator to calculate each solution.

32. 454 cm = _____ ft

33. 3 yds = _____ meters

34. 25 cm = _____ inches

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35. 1 mile = _____ millimeters

36. A runner at a track meet ran the mile in 4 minutes. Calculate how many kilometers per hour the runner ran. _____

(a) .4 km/minute (c) 3 km/hr

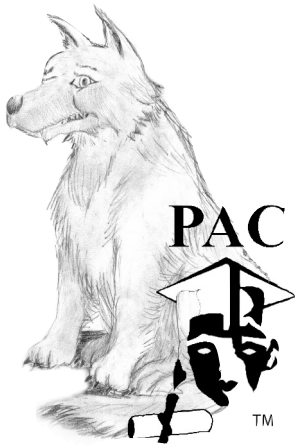
(b) 6.4 km/hour (d) 24.135 km/hr

37. In question #36, the sequence of function keys to obtain the answer is: _____

(a) ÷, × (b) ÷, ÷, <enter> (c) ×, ×, <enter> (d) ÷, ×, <enter>

38. Write the **Life Principle.** "_____ _____."

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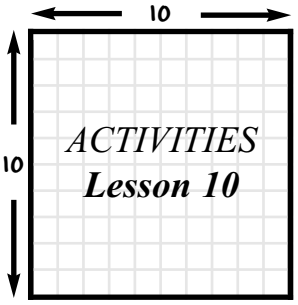


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Calculations

Calculate (More Conversions)



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. Conversions in this lesson are shown with more _____ places than those presented in earlier lessons.

2. Previously, conversion factors were _____ to make the calculations easier.

3. Table 10.1 shows the conversion factors for different measures of _____.

Refer to Table 10.1 and Example Set 1 to answer questions 4-8.

4. 1 sq foot = _____ sq in

5. 345.575 sq ft = _____ sq mm

6. 0.155000 sq in = _____ sq cm

7. 1 sq ft = _____ sq meter

8. 1 sq yd = _____ sq meter

Refer to Table 10.1 and Example Set 2 to answer questions 9-12.

9. The first step was to calculate the _____ of the field.

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

11. 1 sq meter = _____ sq ft

12. 2400 sq meters = _____ sq ft

Refer to Table 10.1 and Example Set 3 to answer questions 13-15.

13. A sheet of copy paper is 8.5 inches wide and _____ inches long.

14. The area in inches of a sheet of copy paper is _____ sq in.

15. 1 sq in = _____ sq mm

16. The area of a sheet of copy paper in square millimeters is _____ sq mm.

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Work the following conversion problems. Set up each problem correctly in the space provided and use your calculator to calculate the solution.

17. 4 sq ft = _____ sq meters

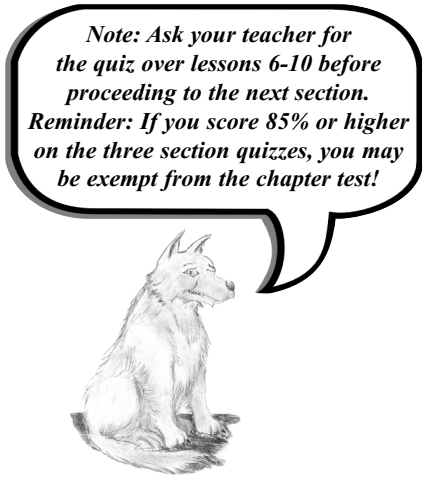
18. 5 sq meters = _____ sq ft

(a) 60 sq ft (b) 15 sq ft (c) 54 sq ft (d) 45 sq ft

19. In the local real estate guide the square footage of a house was listed as 2500 sq ft. Calculate the area of the house in square meters. _____

(a) 230 sq meters (b) 200 sq meters (c) 232.26 sq meters (d) 250 sq meters

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



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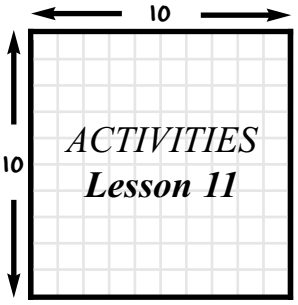
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Calculations

Calculate (Volume Conversions)



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 this lesson the conversions factors for volume are shown more _____.

2. The _____ of calculators make these calculations easier.

3. Table 11.1 shows the conversion factors for _____.

Refer to Table 11.1 and Example Set 1 to answer questions 4-9.

4. Timothy owned a _____ airplane.

5. Timothy purchased _____ gallons of gasoline.

6. Timothy's model airplane can fly one hour on _____ milliliters of fuel.

7. 1 quart = _____ pints

8. 1 pint = _____ ***gills***

9. Timothy's plane can fly for _____ hours on 3 gallons of gasoline.

10. The unit conversions were placed in such a manner as to _____ them out.

11. Making sure the units divide out, insures that you have placed each conversion _____.

Refer to Table 11.1 and Example Set 2 to answer questions 12-21.

12. The compartment in the ***oil tanker*** was _____ long.

13. A sea-going ship designed to carry oil is called a(n) _____.

14. A vessel capable of sailing on the oceans of the world is considered to be a(n) _____ ship.

15. The oil tanker was built in a _____.

16. A place where ships are built is called a _____.

17. The formula for the volume of a rectangular prism (the compartment) is V = _____.

18. The notation, m^3, means _____ meters.

19. The volume of the compartment is _____ cubic meters.

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20. One cubic foot contains _____ gallons.

21. The tanker could transport _____ gallons of oil.

Work the following conversion problems. Set up each problem in the space provided and use your calculator to perform the calculations. Write each answer on the blank.

22. Convert 45 cubic inches into cubic centimeters. _____

23. Convert 58 gallons into cubic feet. _____

24. Convert 35.314667 milliliters into gills. _____

25. A tanker trailer on a gasoline truck holds approximately 5,000 gallons of gasoline. Calculate the volume of the tank trailer in cubic feet. Round your answer to the nearest cubic foot and choose the best answer from the list. _____

(a) 35,00 cubic ft (b) 668 cubic ft (c) 350 cubic ft (d) 6,680 cubic ft

26. The dimensions of a box used for shipping office supplies are 15 inches wide, 15 inches high, and 20 inches long. The volume of the box in cubic centimeters is ____ cubic centimeters.

(a) 7,374.1788 (b) 85,000.00 (c) 4,500.00 (d) 73,741.788

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

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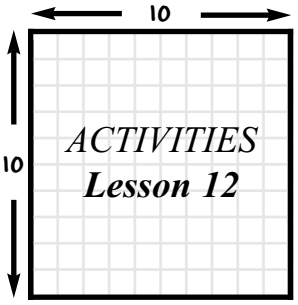
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Date: _____ Grade: _____



Calculations

Calculate (Weight Conversions)



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 this lesson the conversions factors for weight are shown more _____.

2. The _____ of calculators make these calculations easier.

3. Table 12.1 shows the conversion factors for _____.

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

4. Timothy's model airplane will carry _____ grams of cargo and gasoline.

5. The ***capacity*** of the fuel tank on Timothy's model airplane is _____ gills of gasoline.

6. _____ is another word for volume.

7. One pound = _____ grams (g)

8. One ounce = _____ grams (g)

9. Four ounces = _____ gill(s)

10. The weight of the gasoline that Timothy's model plane could hold was _____ grams.

11. The weight of other cargo that Timothy's model airplane can carry is _____ grams.

Refer to Table 12.1 and Example Set 2 to answer questions 12-15.

12. One kilogram = _____ pounds

13. Timothy and his little brother together weigh _____ kilograms.

14. _____ Timothy's weight from the weight of both boys combined.

15. Timothy's little brother weighs _____.

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Work the following conversion problems. Set up each problem in the space provided and use your calculator to perform the calculations. Write each answer on the blank.

16. Convert 64 oz into gills. _____

17. 1 ton = _____ grams (1 ton = 2,000 pounds)

18. 4 gills = _____ grams

19. 1 pound = _____ kg

20. 220.4623 pounds = _____ kg

21. A milk tanker truck can haul approximately 50,000 pounds of milk. The milk truck can haul _____ kilograms of milk.

(a) 23,679.00
(b) 2,267.961461
(c) 25,000.00
(d) 24,679.61616
(e) none of these

22. A soft drink can holds 12 fluid ounces of liquid. The nutritional facts list shows that one can contains 41 grams of sugar. Calculate the amount of sugar in a case (24 cans) of soft drinks. Convert the answer into pounds. _____ pounds of sugar

(a) 21.6934866 (b) 2.16934866 (c) 3.16934866 (d) 31.16934866

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

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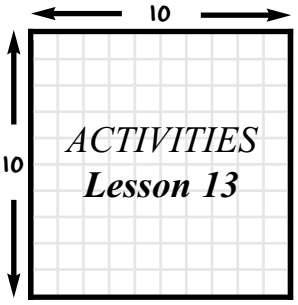
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Date: _____ Grade: _____



Calculations

Calculate Temp (°F to °C)



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 temperature on a ***marquee*** is usually given in both _____ and _____ units.

2. The unit of temperature in the English System with 180 equal divisions between the freezing point and the boiling point is the _____ degree or unit.

3. The normal unit of temperature in the Metric System with 100 equal divisions between the freezing point and boiling point of water is the _____ unit or degree.

4. The computer in the bank that controls the marquee must _____ the temperature reading from the bank's thermometer between the two units of measurement.

5. The average American citizen is more familiar with _____ units than with Celsius.

6. _____ use ***Celsius*** measurements because it is a standard in the scientific community all around the world.

7. Celsius measurement is also much easier to understand and work with the freezing point, 0°, and boiling point, 100°, of _____ in calculations.

8. Making temperature conversion calculations with the aid of a calculator are _____ and more _____.

9. The formula for converting Fahrenheit temperatures into degree Celsius is C = _____.

10. The letter, F, means _____.

Refer to Example Set 1 to answer questions 11-14.

11. _____ °F is substituted into the formula, $C = \frac{5}{9}(F - 32)$.

12. Press the _____ key to perform the operations.

13. The answer, _____ should appear on the screen of the calculator.

14. The final answer was rounded to the nearest _____ place.

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Refer to Example Set 2 to answer questions 15-17.

15. Convert _____ °F into degrees Celsius.

16. Depending on the degree of accuracy desired, _____ the answer to the desired decimal place.

17. 211°F = _____°C. (rounded to the nearest *hundredths* place)

Work the following problems converting Fahrenheit units of temperature into Celsius units of temperature. Set up each conversion in the space provided and write the answer on the blank.

18. Convert 15°F into degrees Celsius. _____°C

19. Convert 450°F into degrees Celsius. _____°C

20. Convert 32°F into degrees Celsius. _____°C

21. The surface temperature of the Sun is estimated to range between 9,400°F and 11,070°F. The range of the surface temperature of the Sun in degrees Celsius is: _____ °C

(a) 3,100.00°C to 4,200.00°C
(b) 5,204.44°C to 6,132.22°C
(c) 6,2143.22°C to 7,342.99°C
(d) none of these

22. Write the **Life Principle.** "_____ _____."

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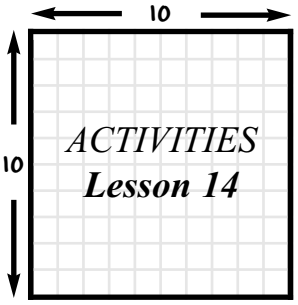
Name: _____

Date: _____ Grade: _____



Calculations

Calculate Temp (°C to °F)



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. Scientists frequently present temperatures to the American public in degree _____ units instead of degree _____ units.

2. Most of the world uses the _____ System for temperature.
(a) Metric (b) Fahrenheit (c) Celsius (d) English

3. Often Celsius units must be _____ to Fahrenheit when temperatures are spoken of in other nations of the world.

4. Within the scientific community, scientists have a(n) _____ (never changing) standard of describing temperature called _____.

5. Scientists consider _____°C as absolute zero, a point at which _____ within a molecule stops.

Match the following freezing to boiling temperature scales.

6. _____ ***Fahrenheit*** (a) 273.16°-373.16°

7. _____ ***Celsius*** (b) 32°-212°

8. _____ ***Kelvin*** (c) 0°-100°

9. The formula for converting degrees Celsius into degrees Fahrenheit is F = _____.

Refer to Example Set 1 to answer questions 10-12.

10. Substitute _____ for the value of C into the formula.

11. Then press the _____ key to perform the operations.

12. 0°C = _____°F.

Refer to Example Set 2 to answer questions 13-17.

13. Substitute 50° for the value of _____ into the formula.

14. The answer, _____ should appear on the screen of the calculator.

15. 50°C = _____°F.

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16. An absolute unit of temperature in the Metric System used only by scientists is called _____.

17. The formula for converting degrees Celsius into degrees Kelvin is K = _____.

Refer to Example Set 3 to answer questions 18-19.

18. $C = 0° \rightarrow K = 273.16 +$ _____

19. $0°C =$ _____$°K$

Refer to Example Set 4 to answer questions 20-23.

20. $C = 90° \rightarrow K = 273.16 +$ _____

21. $273.16 + 90 =$ _____

22. The answer is _____ rounded.

23. The formula for converting Kelvin to Celsius is _____.

Refer to Example Set 5 to answer questions 24-25.

24. $K = 100° \rightarrow C =$ _____ $- 273.16$

25. $100°K =$ _____$°C$

Refer to Example Set 6 to answer questions 26-27.

26. $K = 400° \rightarrow °C =$ _____ $- 273.16$

27. $400°K =$ _____$°C$

Work the following temperature conversion problems.

28. $30°C =$ _____$°F$

29. $-20°C =$ _____$°F$

30. $75°F =$ _____$°C$

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31. 150°*F* = _____°*C*

32. 25°*C* = _____°*K*

33. 45°*K* = _____°*C*

34. 60°*F* = _____°*K* (Hint: First convert 60°*F* to °*C*.)
(a) 15.6 (b) -288.72 (c) 288.72 (d) 301.25

35. Write the **Life Principle.** "_____
_____."

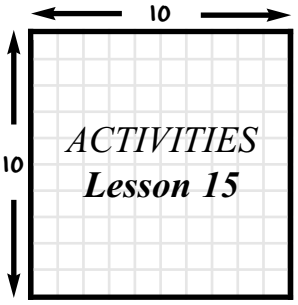
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Name: _____

Date: _____ Grade: _____





Calculations

Calculate (Unknowns)

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. _____ make solving equations containing one *unknown* simpler.

2. You must remember the _____ for solving equations with one *unknown*.

3. The scientific calculator will make the final calculation of the solution much _____.

Refer to Example Set 1 to answer questions 4-7.

4. The x must be isolated on the _____ of the equals sign.

5. _____ must be subtracted from both sides of the equation.

6. The _____ can be made quicker and easier using a calculator.

7. The solution to $3.45x + 55.9 = 64$, is $x =$ _____.

8. Example Set 2 is used to demonstrate changing the words of a stated problem into _____ terms.

9. You should follow along in the example with your _____.

Refer to Example Set 2 to answer questions 10-15.

10. *Times* means _____.

11. *Decrease* means _____.

12. *Increase* means _____.

13. *"Same as"* means _____.

14. Four times a number decreased by 5.25 is the same as twice the number increased by 9.3 is written mathematically as:_____.

15. The solution to $4x - 5.25 = 2x + 9.3$, is $x =$ _____.

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Find the solution (solve for *x*) to the following problems. Show your work and write each answer on the blank. Be sure to use your calculator for the calculations.

16. $2x + 7 = x + 21$; $x =$ _____

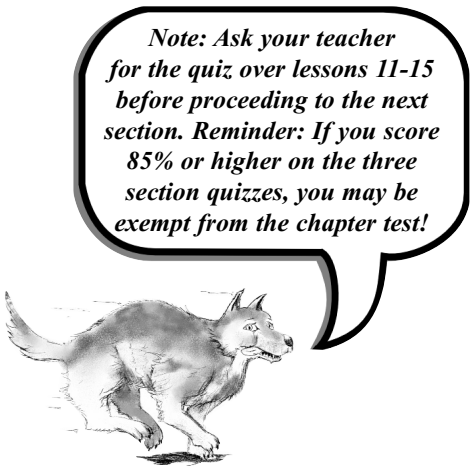
17. $9.0x - 3 = 4.5x + 6$; $x =$ _____

18. Three times a number decreased by three is the same as twice the number increased by one. What is the number? $x =$ _____

19. $44.8x + 4.559 = 12.33x + 24.4$; $x =$ _____

(a) 6.110563597
(b) .6110563597
(c) .06110563597
(d) 2.3187
(e) none of these

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



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Basic 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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Mathematics Charts

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

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

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

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

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

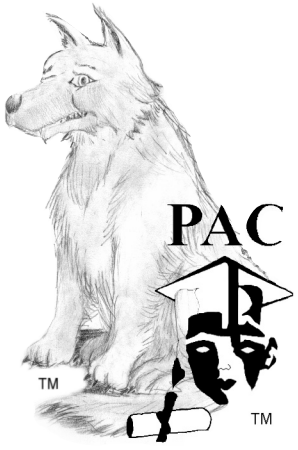
Metric to English	
1 centimeter	0.3937 in.
1 meter	39.37 in.
1 meter	1.09 yds
1 kilometer	0.6213 mile

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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