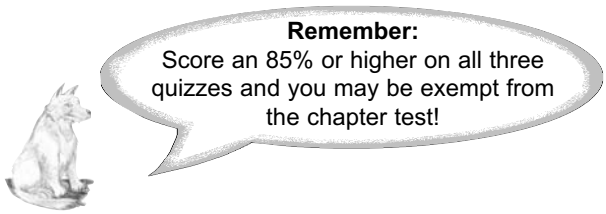
SECTION QUIZ 3-2





Congratulations! You have completed this section!

Answer the following questions to test your understanding of the material. When you are finished, hand in your quiz to your teacher. Each answer is worth 2.2 points.

Problems involving hypotenuse and square root will require a regular calculator.

Refer to the Mathematics Chart as needed to work the following problems. Show your work and write your answers on the blanks.

1. Calculate the volume of a juice can in the shape of a cylinder if the radius of the can is 2 inches and the height is five inches. _____

(a) 6.28 in^3 (b) 628 in^3 (c) .628 in^3 (d) 62.8 in^3

2. Calculate the capacity of a cylindrical storage tank if the diameter of the tank is 115 feet and the height of the tank is 30 feet. _____

3. Calculate the volume of a city water tower that is in the shape of a sphere, if the radius of the tank is 24 feet. _____ (Use 3.14 for π.)

(a) 5,787.6 ft^3 (b) 57,876 ft^3 (c) 43,407 ft^3 (d) 173,629 ft^3

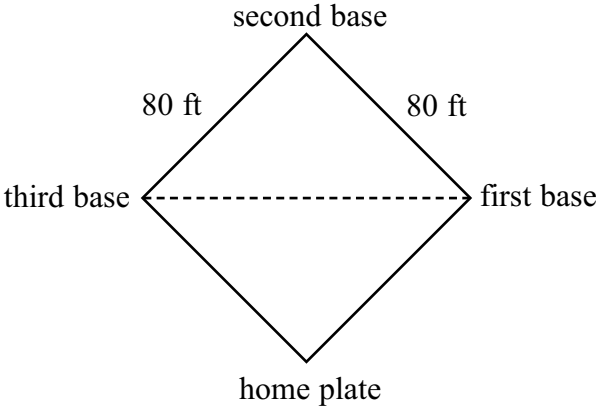
4. At a local oil refinery, a spherical storage tank stands 81 feet tall. Calculate the volume of the tank in cubic feet. _____

5. A rectangular prism is 3 inches wide, 3 inches high, and 9 inches long. Calculate the volume of the prism. _____

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6. Using the dimensions of the baseball field below, calculate the straight-line distance between first and third base. (Use a calculator to determine the answer.)

_____

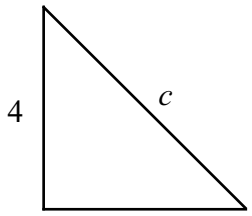


7. If the distance between the bases of a baseball diamond is 90 feet, calculate the distance a catcher would have to throw the ball from home plate to second base. (Use a calculator to determine the answer.) _____

(a) 100 ft (b) 120 ft (c) 127 ft (d) 137 ft

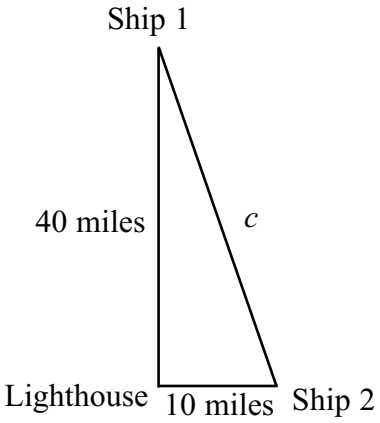
8. Calculate the length of a support cable to a radio transmission tower if the tower is 300 feet tall and the cable is attached to the ground 60 feet from the bottom of the tower. (Use a calculator to determine the answer.) _____

9. Calculate the value of *c* in the 45 - 45 - 90 triangle below. _____ (Use a calculator to determine the answer.)



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10. One ship is 40 miles from a lighthouse. Another ship is 10 miles from the lighthouse. Calculate the distance between the two ships if they are positioned according to the diagram below. (Use a calculator to determine the answer.) _____



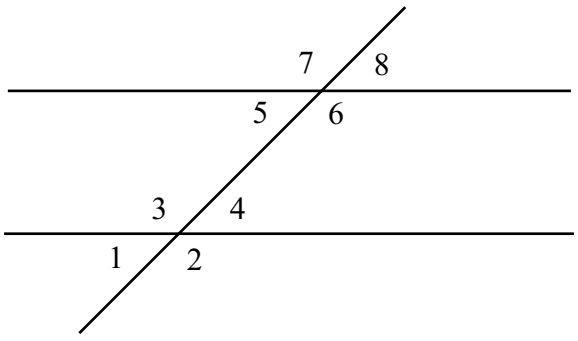
11. The lengths of the legs of a right triangle are 2 cm and 2 cm. Calculate the length of the hypotenuse. _____ (Use a calculator.)

12. The lengths of the legs of a right triangle are $\sqrt{2}$ m and $\sqrt{2}$ m. Calculate the length of the hypotenuse. _____ (Use a calculator and be sure to write your answer in proper form.)

(a) $\sqrt{4}$ m (c) 4 m (e) a or d

(b) $\sqrt{2}$ m (d) 2 m (f) none of these

Refer to the figure below for questions 13-17. 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.



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

14. $\angle 3$ & $\angle 4$ _____

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15. ∠5 & ∠7 _____

16. ∠2 & ∠4 _____

17. ∠2 ≅ ∠6 _____

Write "complementary," "supplementary," or "neither" on each blank, to describe the angles shown.

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

_____

19. m∠A = 32°; m∠B = 58°

_____

20. m∠A = 67°; m∠B = 33°

_____

21. m∠A = 162°; m∠B = 18°

_____

22. m∠A = 104°; m∠B = 76°

_____

23. m∠A = 45°; m∠B = 45°

_____

24. m∠A = 141°; m∠B = 39°

_____

25. m∠A = 10°; m∠B = 80°

_____

Determine if the following ratios are proportional. Write "Yes" or "No" on each blank.

26. $^{50}/_{100}$ and $^{20}/_{100}$; $^{50}/_{100} = {}^{20}/_{100} \rightarrow 50 \bullet 100 = 20 \bullet 100 \rightarrow 5000 \neq 2000$

_____

27. $^{5}/_{10}$ and $^{6}/_{12}$ _____

28. $^{3}/_{4}$ and $^{25}/_{100}$ _____

29. $^{1}/_{3}$ and $^{6}/_{18}$ _____

Consider two schools, A and B. School A has a student population consisting of 250 boys and 500 girls. School B has a student population consisting of 300 boys and 400 girls. Calculate ratios using information from these schools in questions 30-31.

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

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

32. Professor K has twenty students in his math class. Seven of the students are boys and 15 of the students are girls. Calculate the ratio of girls to boys in Professor K's class.

_____

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

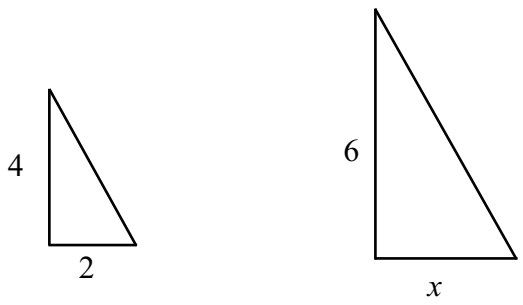
34. If a company's assets are $600,000 and its debts are $240,000, calculate the ratio of the company's debts to assets. _____

(a) $^5/_2$ (b) $^1/_2$ (c) $^2/_5$ (d) $^1/_3$

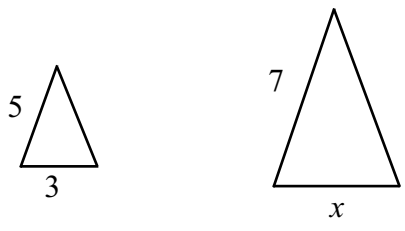
35. A store hired 60 new employees, of which 25 were women and 35 were men. Calculate the ratio of women to the total of the new employees. _____

Use ratios and proportions to work the following similarity problems.

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



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

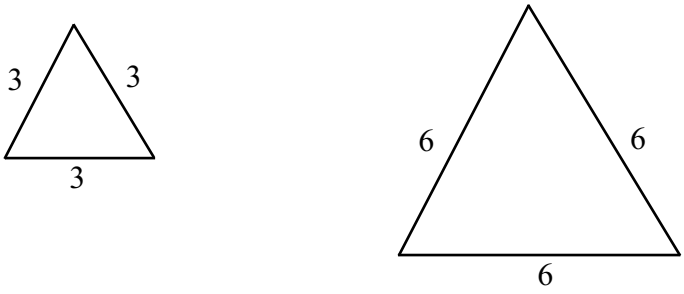


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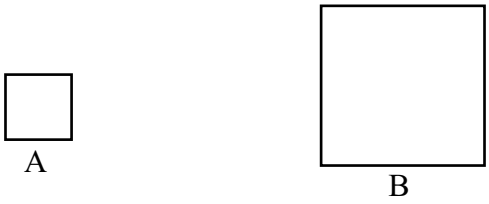
38. Determine the scale factor between the two shapes. _____

(a) 2 (c) $\frac{1}{2}$ (e) a or d (g) none of these

(b) $\frac{1}{3}$ (d) 3 (f) a or c

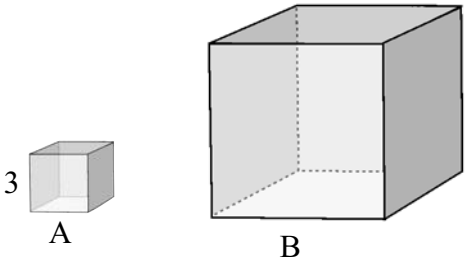


39. The length of the sides of square B is 4 times that of square A. The area of square B is _____ times the area of square A.



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

(a) 216 cubic units (b) 729 cubic units (c) 27 cubic units (d) 1728 cubic units



Match the following Life Principles.

41. _____ *"Alter your attitude*

42. _____ *"Usually, your success is*

43. _____ *"Things turn out the best*

44. _____ *"Regarding the shape of your life,*

45. _____ *"Days are scrolls*

(a) *proportional to your effort."*

(b) *write on them what you want to be remembered."*

(c) *and you can alter your life."*

(d) *for those who make the best of the way things turn out."*

(e) *your choices are part of the equation."*

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