Do You Know HOW?

Solve each proportion.

1. \( \frac{2}{1.2} = \frac{5}{k} \)
2. \( \frac{12}{48} = \frac{g}{20} \)
3. \( \frac{m}{20} = \frac{5}{4} \)

Solve each equation. Check your answer.

4. \( 7y + 5 = 3y - 31 \)
5. \( \frac{1}{2}(t + 7) = 32 \)
6. \( \frac{2h - 6}{6} = \frac{2}{3} \)

7. A cheetah ran 300 feet in 2.92 seconds. What was the cheetah’s average speed in miles per hour?

The figures are similar. Find the missing length.

8. 

9. A tree casts a 26-ft shadow. A boy standing nearby casts a 12-ft shadow, forming similar triangles. His height is 4.5 ft. How tall is the tree?

Tell whether each percent of change is an increase or decrease. Then find the percent of change.

10. Original amount: $90
    New amount: $84.50
11. Original amount: $100
    New amount: $140
12. Original amount: $15
    New amount: $5.50
13. Original amount: $8.50
    New amount: $12.75
Define a variable and write an equation to model each situation. Then solve.

14. An online music club sells compact discs for $13.95 each plus $1.95 shipping and handling per order. If Maria’s total bill was $85.65, how many compact discs did Maria purchase?

15. Tickets to the county fair for four adults and five children cost $33.00. An adult’s ticket costs $1.50 more than a child’s ticket. Find the cost of an adult’s ticket.

16. The scale of a map is 1 cm : 50 mi. Determine the distance between two cities that are 4.2 cm apart on the map.

17. In 1995, the price of a laser printer was $1,299. In 2002, the price of the same type of printer had dropped to $499. Find the percent of decrease.

Do You UNDERSTAND?

18. Writing Write a problem that can be solved using similar triangles. Draw a diagram and solve the problem.

19. Open-Ended Estimate your walking rate in feet per second. Write this rate in miles per hour.

20. Reasoning An item costs $64. The price is increased by 10%, then reduced by 10%. Is the final price equal to the original price? Explain.