

Slope Word Problems

1. The cost of a school banquet is \$95 plus \$15 for each person attending. Write an equation that gives total cost as a function of the number of people attending. What is the cost for 77 people?
2. In 1980 the average price of a home in Brainerd County was \$97,000. By 1986 the average price of a home was \$109,000. Write a linear model for the price of a home, P , in Brainerd County as a function of the year, t . Let $t = 0$ correspond to 1980.
3. Roman paid \$150 to join a handball club. He pays an additional \$15 every time he uses one of the club's handball courts. Write an equation that describes Roman's total cost for playing handball as a function of the number of times he plays.
Let C = the total cost and n = the number of times he plays.
4. A sunflower in Julia Rosario's garden was 12 centimeters tall when it was first planted. Since then, it has grown approximately 0.6 centimeters per day. Write an equation expressing the sunflower's height, H , in terms of the number of days, d , since it was planted.
5. Billy plans to paint baskets. The paint costs \$14.50. The baskets cost \$7.25 each. Write an equation that gives the total cost as a function of the number of baskets made. Determine the cost of four baskets.
6. A real estate sales agent receives a salary of \$250 per week plus a commission of 2% of sales. Write an equation that gives the weekly income y in terms of sales x .

7. Felicia Johnson paid \$125 to join a tennis club. She pays an additional \$5 every time she uses one of the club's tennis courts. Use this information to answer the following questions.
 - a. Write an equation that describes Felicia's total cost for playing tennis as a function of the number of times she plays. Let C = the total cost and n = the number of times she plays.
 - b. Describe the domain and range of the function.
 - c. Felicia does not want to spend more than \$275 to play tennis during the summer. What is the maximum number of times that she can play tennis on the club's courts for this amount?

8. Members of the soccer team are walking to raise money for a local shelter. 92 sponsors pledged a dollar per kilometer. Some sponsors gave additional donations that did not depend on the distance students walked.
 - a. Write a verbal model that relates the total amount A of money raised by the soccer team to the number n of kilometers walked and the amount d given in additional donations.
 - b. The team walked 8 kilometers and raised a total amount of \$842. Is there enough information to find how much money came from additional donations that did *not* depend on walking distance? If so, find this amount.

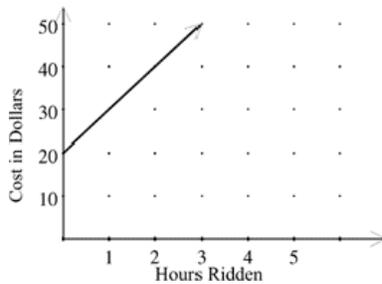
9. Write an equation of the line passing through the point $(-7, -6)$ with slope $m = 4$.

10. If a large factory sells its new gadgets for \$5 each, it can sell 1050 per month, and if it sells the same gadgets for \$9, it will sell 900 per month. Assuming the relationship between price and sales is linear, predict the monthly sales of gadgets to the nearest whole number if the price is \$12.

Name: _____

ID: A

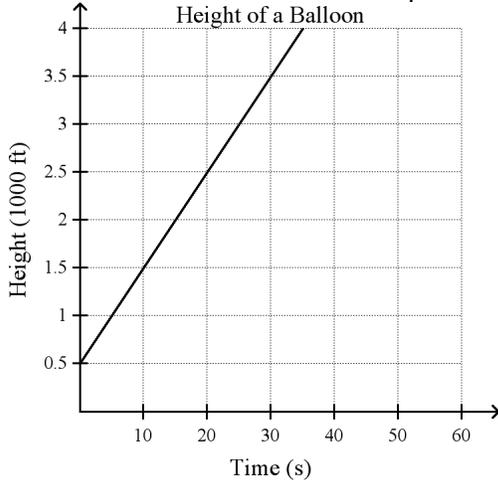
11. The graph for a stable that charges a \$20 flat fee plus \$10 per hour for horseback riding is shown below. How will the graph change if the stable changes its charges to a flat fee of \$45 plus \$30 per hour?



12. Write an equation of a line with slope 7 passing through the point $(-1, 3)$.
13. Find the y -intercept of a line that passes through $(-2, 6)$ and has a slope of -5 .
14. A grocer knows that if he sells his canned hams for \$8 each, he can sell 950 per month, and if he sells the same hams for \$10, he will sell 900 per month. Assuming the relationship between price and sales is linear, write an equation you could use to predict sales for other prices.
15. Mary was told that a line goes through the points $(1, 3)$ and $(6, -2)$ and has a slope of 3.
- Explain why the information Mary was given cannot be correct.
 - If the given point $(1, 3)$ and the given slope are correct, what is the equation for the line? Give the coordinates of another point on the line.
 - If the given points are correct for the line, what is the slope? Write an equation for the line.

16. A line has a slope of 6 and an x -intercept of 7.
- Write the equation for the line in slope-intercept form. Justify your work.
 - Another line, with the same slope as the first, passes through the point $(-1, -1)$. Is enough information provided to write the equation of this line? Explain. Find the equation if one can be written.

- _____ 17. A balloon is released from the top of a building. The graph shows the height of the balloon over time.



- What does the slope and y -intercept reveal about the situation?
- For a similar situation, the slope 35 is and the y -intercept is 550. What can you conclude?
 - The balloon starts at a height of 500, and rises at a rate of 100; The balloon starts at a height of 550, and rises at a rate of 35.
 - The balloon starts at a height of 500, and rises at a rate of 100; The balloon starts at a height of 35, and rises at a rate of 550.
 - The balloon starts at a height of 100, and rises at a rate of 500; The balloon starts at a height of 550, and rises at a rate of 35.
 - The balloon starts at a height of 100, and rises at a rate of 500; The balloon starts at a height of 35, and rises at a rate of 550.

Slope Word Problems

Answer Section

1. $y = 15x + 95$; \$1250
2. $P = 2000t + 97,000$
3. $C = 15n + 150$
4. $H(d) = 0.6d + 12$
5. $C(x) = 7.25x + 14.50$; \$43.50
6. $y = 250 + 0.02x$
7. a. $C = 5n + 125$
 b. The domain is all whole numbers and the range is 125, 130, 135, 140, ...
 c. 30 times
8. a. Total amount raised, A , equals 92 sponsors times number of kilometers, n , times \$1 per kilometer, plus additional donations, d .
 b. Yes. Write an equation based on the verbal model: $A = 92n + d$. Substitute the information from the problem into the equation and solve for d : $842 = 92(8) + d$. The amount of money from additional donations is \$106.
9. $y = 4x + 22$
10. 788
11. The slope will be 30 and the y -intercept will be 45.
12. $y = 7x + 10$
13. -4
14. $y = -25x + 1150$
15. a. The slope of the line that goes through (1, 3) and (6, -2) is not 3.
 b. $y = 3x$; Accept any ordered pair in which the y -coordinate is 3 times the x -coordinate. Sample point: (4, 12)
 c. -1; $y = -x + 4$
16. a. Solve the following for b , the y -intercept:
 $0 = 6(7) + b$
 $b = -42$
 So the equation is $y = 6x - 42$.
 b. Yes. The slope is 6 and a point is given. Solve the following equation for b :
 $-1 = 6(-1) + b$
 $b = 5$
 So the equation for this line is $y = 6x + 5$.
17. A