

## EXERCISES

Write an equation in slope-intercept form when given the slope and  $y$ -intercept.

1. slope =  $\frac{6}{5}$ ,  $y$ -intercept = 8

2. slope =  $-4$ ,  $y$ -intercept = 1

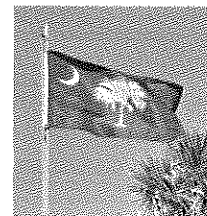
3. slope = 1,  $y$ -intercept = 2

4. slope = 0,  $y$ -intercept =  $-3$

5. In 2010, the population of South Carolina was approximately 4,600,000. During the next two years, the population increased by approximately 45,000 people each year.

a. Write an equation in slope-intercept form that represents the population,  $y$ , of South Carolina in terms of the number of years,  $x$ , since 2010.

b. Estimate the population of South Carolina in 2020 if this trend continues. Show all work necessary to justify your answer.



Write an equation in slope-intercept form when given the slope and one point on the line.

6. slope = 2, goes through the point (1,  $-4$ )

7. slope =  $-\frac{3}{4}$ , goes through the point (4, 2)

8. slope =  $-1$ , goes through the point ( $-2$ , 3)

9. slope =  $\frac{5}{2}$ , goes through the point ( $-6$ ,  $-10$ )

10. slope =  $\frac{1}{2}$ , goes through the point (3, 4)

11. slope = 0, goes through the point (11, 8)



12. One New York City taxi company charges an initial fee plus \$0.50 for each minute of the ride. Tammy was in the taxi for 15 minutes. The cost was \$10.50. Let  $x$  represent the number of minutes and  $y$  represent the total cost of the taxi ride.

a. Identify the slope and one ordered pair from the information given.

b. Find the equation of the line that fits this information. Show all work necessary to justify your answer.

c. Joe uses this taxi company for a 30 minute ride. How much should he expect to pay?

Write an equation in slope-intercept form when given two points.

13. goes through the points (1, 2) and (3, 8)

14. goes through the points ( $-5$ , 9) and (4, 0)

15. goes through the points (6, 9) and ( $-3$ , 6)

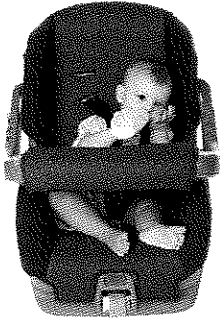
16. goes through the points (8,  $-4$ ) and ( $-2$ , 1)

17. goes through the points (10, 6) and (0,  $-2$ )

18. goes through the points (4,  $-5$ ) and (4,  $-1$ )

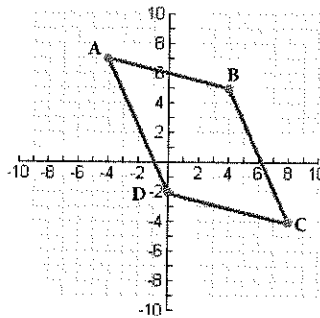
19. Evan says it is impossible to create an equation for two points that have the same  $x$ -values, like (1, 5) and (1, 8), because the slope is undefined. Do you agree or disagree? Explain your reasoning.

20. Find the equation of the line that goes through the points ( $-2$ , 7) and ( $-1$ , 5). Support your answer by substituting both ordered pairs into your equation to show they make the equation true.

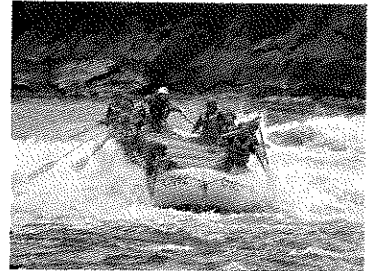


21. At 2 weeks old, Bob's baby sister weighed 9 pounds. When she was 8 weeks old, she weighed 12 pounds. Let  $x$  represent how old the baby is in weeks and  $y$  represent the baby's weight in pounds.
- Write two ordered pairs that use the data about Bob's sister.
  - Find the equation of the line that goes through these two points.
  - If Bob's sister continues to grow at this rate, how much will she weigh when she is 20 weeks old? Is this reasonable? Why or why not?

22. Four line segments make the four sides of a quadrilateral on the coordinate plane below. Find the equations of the lines containing each side:  $\overline{AB}$ ,  $\overline{BC}$ ,  $\overline{CD}$ ,  $\overline{AD}$ . Are there any similarities in the equations for lines  $\overline{AB}$  and  $\overline{CD}$ ? How about  $\overline{BC}$  and  $\overline{AD}$ ?



23. A raft rental company on the Gauley River rents rafts for a set fee plus an additional charge per hour. Francis asked two different people how many hours they had rented their rafts for and how much it cost. One rented a raft for 6 hours and paid \$32. Another rented a raft for 11 hours and paid \$47. Let  $x$  represent the length of time in hours a raft is rented for and let  $y$  represent the total cost.

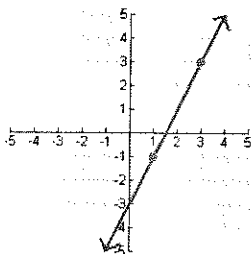


- What is the linear equation that represents the data Francis collected?
- What number in the linear equation represents the amount of the set fee?
- What is the real-world meaning of the slope in this equation?
- How much will someone pay for a raft rental from this company if he only keeps the raft for 4 hours? Show all work necessary to justify your answer.

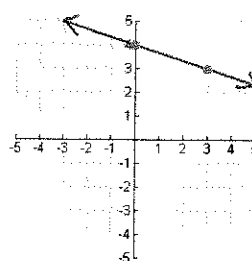
## REVIEW

Write the linear equation for each graph in slope-intercept form.

24.



25.



26.

