

2.2 EXERCISES

HOMEWORK KEY

 = **WORKED-OUT SOLUTIONS**
on p. WS1 for Exs. 9, 19, and 45

 = **TAKS PRACTICE AND REASONING**
Exs. 17, 35, 36, 44, 45, 48, 50, and 51

SKILL PRACTICE

- VOCABULARY** Copy and complete: The ? of a nonvertical line is the ratio of vertical change to horizontal change.
- WRITING** How can you use slope to decide whether two nonvertical lines are parallel? whether two nonvertical lines are perpendicular?

EXAMPLES 2 and 3

on pp. 82–83
for Exs. 3–17

FINDING SLOPE Find the slope of the line passing through the given points. Then tell whether the line *rises, falls, is horizontal, or is vertical*.


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|----------------------|----------------------|-----------------------|
| 3. (2, -4), (4, -1) | 4. (8, 9), (-4, 3) | 5. (5, 1), (8, -4) |
| 6. (-3, -2), (3, -2) | 7. (-1, 4), (1, -4) | 8. (-6, 5), (-6, -5) |
| 9. (-5, -4), (-1, 3) | 10. (-3, 6), (-7, 3) | 11. (4, 4), (4, 9) |
| 12. (5, 5), (7, 3) | 13. (0, -3), (4, -3) | 14. (1, -1), (-1, -4) |

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ERROR ANALYSIS Describe and correct the error in finding the slope of the line passing through the given points.


15.


$$(-4, -3), (2, -1)$$

$$m = \frac{-1 - (-3)}{-4 - 2} = -\frac{1}{3}$$


16.

$$(-1, 4), (5, 1)$$

$$m = \frac{5 - (-1)}{1 - 4} = -2$$


17.  **TAKS REASONING** What is true about the line through (2, -4) and (5, 1)?
- (A) It rises from left to right. (B) It falls from left to right.
(C) It is horizontal. (D) It is vertical.

EXAMPLE 4

on p. 84
for Exs. 18–23

CLASSIFYING LINES Tell whether the lines are *parallel, perpendicular, or neither*.

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|--|--|
| 18. Line 1: through (3, -1) and (6, -4)
Line 2: through (-4, 5) and (-2, 7) | 19. Line 1: through (1, 5) and (3, -2)
Line 2: through (-3, 2) and (4, 0) |
| 20. Line 1: through (-1, 4) and (2, 5)
Line 2: through (-6, 2) and (0, 4) | 21. Line 1: through (5, 8) and (7, 2)
Line 2: through (-7, -2) and (-4, -1) |
| 22. Line 1: through (-3, 2) and (5, 0)
Line 2: through (-1, -4) and (3, -3) | 23. Line 1: through (1, -4) and (4, -2)
Line 2: through (8, 1) and (14, 5) |

EXAMPLE 5

on p. 85
for Exs. 24–27

AVERAGE RATE OF CHANGE Find the average rate of change in y relative to x for the ordered pairs. Include units of measure in your answer.

- (2, 12), (5, 30) x is measured in hours and y is measured in dollars
- (0, 11), (3, 50) x is measured in gallons and y is measured in miles
- (3, 10), (5, 18) x is measured in seconds and y is measured in feet
- (1, 8), (7, 20) x is measured in seconds and y is measured in meters