



**THIRD SPACE  
LEARNING**

# Equation of a Line Worksheet

Algebra

**Grades 6 to 8**

## Skill Questions

Name: .....

Date: .....

- 1 Write the equation of a line in slope-intercept form when the slope is 3 and the  $y$ -intercept is -2.

Answer

- 2 Given two points on a line, (2, 5) and (4, 11), find the equation of the line in slope-intercept form.

Answer

- 3 Convert the equation  $2y - 4x = 8$  slope-intercept form.

Answer

- 4 Determine the slope of a line passing through the points (1, 3) and (5, 9).

Answer

- 5 Find the  $y$ -intercept of the line with the equation  $y = -2x + 7$ .

Answer

## Equation of a Line Worksheet | Grades 6 to 8

- 6 Solve the equation  $4x - 7 = 3x + 5$  to find the  $x$ -value where the two lines represented by the equations intersect.

Answer

- 7 Given the equation  $2y + 6x = 18$ , find the  $y$ -value when  $x = 3$ , representing a point on the line.

Answer

- 8 Determine if the point  $(2, 4)$  lies on the line represented by the equation  
$$y = 2x - 1$$

Answer

- 9 Solve the inequality  $3y + 2 > 5$  to find the range of  $y$ -values that satisfy the inequality for the line represented by the equation  $y = -2x + 1$

Answer

- 10 Write an equation in slope-intercept form for a line passing through the point  $(5, -3)$  with a slope of  $\frac{1}{4}$

Answer

## Applied Questions

- 11** A car rental company charges a flat fee of \$30 plus an additional \$0.15 per mile for renting a car. Write an equation to represent the total cost,  $C$ , of renting a car for  $m$  miles. Use this equation to determine the cost of renting a car for a 150-mile road trip.

Answer

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- 12** Emily is planting flowers in her garden. The number of flowers,  $n$ , she can plant depends on the length of the row in feet,  $l$ , according to the equation  $n = 2l - 5$ . Determine how many flowers Emily can plant if the row is 8 feet long.

Answer

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- 13** A phone company charges a monthly fee of \$20 and an additional \$0.10 per text message sent. Write an equation to represent the monthly cost,  $C$ , based on the number of text messages,  $t$ . Determine the monthly cost if a customer sends 150 text messages.

Answer

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## Equation of a Line Worksheet | Grades 6 to 8

- 14** Sarah is saving money to buy a new bicycle. She currently has \$50 saved and plans to save \$10 each week. Write an equation to represent the total amount of money,  $y$ , Sarah will have after  $x$  weeks. Use this equation to determine how many weeks it will take for Sarah to have at least \$150.

Answer

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- 15** The temperature in a city is decreasing at a rate of 2 degrees Celsius per hour. Write an equation to represent the temperature,  $T$ , after  $h$  hours. If the current temperature is 28 degrees Celsius, determine how many hours it will take for the temperature to drop below 20 degrees Celsius.

Answer

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## Answers

Question number	Question	Answers	Standard
1	Write the equation of a line in slope-intercept form when the slope is 3 and the $y$ -intercept is -2.	$y = 3x - 2$	8.EE.B.5
2	Given two points on a line, (2, 5) and (4, 11), find the equation of the line in slope-intercept form.	$y = 3x - 1$	8.EE.B.5
3	Convert the equation $2y - 4x = 8$ to slope-intercept form.	$y = 2x + 4$	8.EE.B.5
4	Determine the slope of a line passing through the points (1, 3) and (5, 9).	The slope is $\frac{3}{2}$	8.EE.B.5
5	Find the $y$ -intercept of the line with the equation $y = -2x + 7$ .	The $y$ -intercept is 7	8.EE.B.5
6	Solve the equation to find the $x$ -value where the two lines intersect.	The solution is $x = 12$	8.EE.B.6
7	Given the equation $2y + 6x = 18$ , find the $y$ -value when $x = 3$ representing a point on the line.	When $x = 3$ , the $y$ -value is $y = 0$	8.EE.B.6
8	Determine if the point (2, 4) lies on the line represented by the equation $y = 2x - 1$	No, the point (2, 4) does not lie on the line	8.EE.B.6

## Equation of a Line Worksheet | Grades 6 to 8 | Answers

Question number	Question	Answers	Standard
9	Solve the inequality $3y + 2 > 5$ to find the range of $y$ -values that satisfy the inequality for the line represented by the equation $y = -2x + 1$	The solution is $y > 1$	8.EE.B.6
10	Write an equation in slope-intercept form for a line passing through the point (5, -3) with a slope of $\frac{1}{4}$	The equation is $y = \frac{1}{4}x - 4\frac{1}{4}$	8.EE.B.6
11	A car rental company charges a flat fee of \$30 plus an additional \$0.15 per mile for renting a car. Write an equation to represent the total cost, $C$ , of renting a car for $m$ miles. Use this equation to determine the cost of renting a car for a 150-mile road trip.	The equation is $C = 0.15m + 30$ . Substituting $m = 150$ gives $C = 52.5$ , so the cost for a 150-mile road trip is \$52.50.	8.EE.B.5
12	Emily is planting flowers in her garden. The number of flowers, $n$ , she can plant depends on the length of the row in feet, $l$ , according to the equation $n = 2l - 5$ . Determine how many flowers Emily can plant if the row is 8 feet long.	Substituting $l = 8$ into the equation gives $n = 11$ , so Emily can plant 11 flowers if the row is 8 feet long.	8.EE.B.5
13	A phone company charges a monthly fee of \$20 and an additional \$0.10 per text message sent. Write an equation to represent the monthly cost, $C$ , based on the number of text messages, $t$ . Determine the monthly cost if a customer sends 150 text messages.	The equation is $C = 0.10t + 20$ . Substituting $t = 150$ gives $C = 35$ , so the monthly cost for 150 text messages is \$35.	8.EE.B.5

Question number	Question	Answers	Standard
14	Sarah is saving money to buy a new bicycle. She currently has \$50 saved and plans to save \$10 each week. Write an equation to represent the total amount of money, $y$ , Sarah will have after $x$ weeks. Use this equation to determine how many weeks it will take for Sarah to have at least \$150.	The equation is $y = 10x + 50$ . Solving for $x$ when $y \geq 150$ gives $x \geq 10$ , so it will take Sarah at least 10 weeks to have at least \$150.	8.EE.B.6
15	The temperature in a city is decreasing at a rate of 2 degrees Celsius per hour. Write an equation to represent the temperature, $T$ , after hours $h$ . If the current temperature is 28 degrees Celsius, determine how many hours it will take for the temperature to drop below 20 degrees Celsius.	The equation is $T = -2h + 28$ . Solving for $h$ when $T < 20$ gives $h > 4$ , so it will take more than 4 hours for the temperature to drop below 20 degrees Celsius.	8.EE.B.6






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