

Name _____ Period _____

LT.12.1.1 – I can write the equation of a line in slope-intercept form ($y = mx + b$).

1. A farmer is measuring the average height y of her tomato plants x weeks after planting sprouts.

x (time)	0	1	2	3	4	5	6
y (height)	2	3	4	5	6	7	8

What is the equation in slope-intercepts form of the line represented by the data in the table?

2. Write an equation in slope-intercept form for the line that passes through the points (6,-3) and (0,2).

LT.12.1.2 – I can use slope-intercept ($y = mx + b$) form to solve problems.

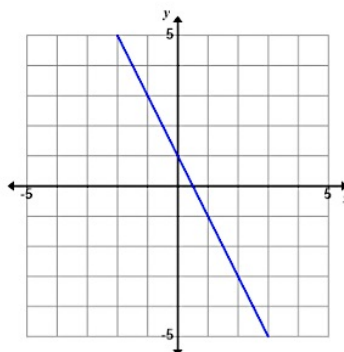
3. A racecar driver is doing a time trial of a new car on a straight track. The car's distance from the timekeeper is represented by $y = 293x + 50$, where x is time in seconds and y is distance in feet from the timekeeper's position. How many feet from the timekeeper is the racecar at the beginning?

4. Julie is sliding down the Super mega Ultra Slide at a local amusement park. She slides at a rate of 8 m/s downward, and after 3 seconds is 5 m off of the ground. Using the equation in slope-intercept form, how many seconds, x , will it take her to slide to the ground from the top? Round your answer to the nearest tenth.

LT.12.2.1 – I can write the equation of a line in point-slope $[y - y_1 = m(x - x_1)]$ form.

5. What is the equation of the line with a slope of 2 through $(-4,6)$ in point-slope form?

6. What is an equation of this line in point-slope form?



7. A rental car company charges drivers a flat fee to rent a car plus \$0.25 for each mile they drive. If a driver pays \$100 and drives 160 miles, write an equation in point-slope form that the driver can use to find his total cost y in terms of the number of miles driven x .

LT.12.2.2 – I can use point-slope form $[y - y_1 = m(x - x_1)]$ to solve problems.

The equation $y - 160 = 40(x - 1)$ represents the height in feet, y , of a hot-air balloon x minutes after the pilot started her stopwatch. Use the above information for Items 8 – 10.

8. Is the hot-air balloon rising or descending? Justify your answer.

9. At what rate is the hot-air balloon rising or descending? Be sure to use appropriate units.

10. What was the height of the balloon when the pilot started her stopwatch?

LT.12.3.1 – I can write the equation of a line in standard form ($Ax + By = C$).

11. The x -intercept of a line is $(-2,0)$ and the y -intercept is $(0,8)$. Given the standard form of the equation of the line, C is -8 . What is the equation of the line in standard form?

12. Renee is stocking the concession stand with x hamburgers and y hot dogs. Hamburgers are sold for \$3 each, while hot dogs are \$2 each. What standard form equation can Renee use for sales needed if she needs to raise \$1500?

13. What is the standard form of the equation below?

$$y + 6 = -\frac{3}{4}(x - 12)$$

LT.12.3.2 – I can use the standard form ($Ax + By = C$) of an equation to solve problems.

Andres joined XSport Fitness, which includes a one-time initiation fee and then a monthly cost. Andres wrote an equation that gives the total cost y of being an XSport member. In standard form, the equation is $4995x - 100y = -17,499$. Use the above information for Items 14 and 15.

14. What is the enrollment fee?

15. How much does Andres pay per month to be an XSport member?

LT.12.4.1 – I can describe the relationship among the slopes of parallel and perpendicular lines.

16. Line a passes through the points $(1,1)$ and $(3,5)$, while line b passes through $(2,0)$ and $(0,1)$. What is the relationship between lines a and b ?

17. Determine which of the 3 lines are parallel, explain how you know.

$$\text{Line } a: x - 4y = 8$$

$$\text{Line } b: 4x + y = 8$$

$$\text{Line } c: y + 8 = -4(x - 5)$$

LT.12.4.2 – I can write an equation of a line that contains a given point and is parallel or perpendicular to a given line.

18. Line a is parallel to the line $y = -\frac{1}{2}x + 6$ and passes through the point $(4,10)$. What is the equation of line a ? (*You may express your equation using any form.*)

19. Line p passes through the point $(3,4)$ and is perpendicular to the line with equation $3x + 2y = 8$. What is the equation for line p ? (*You may express your equation using any form.*)