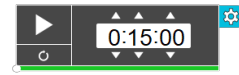


# Opener



1. Grandma gave Sara \$50 on her birth day. Every year, she gives Sara \$20 more.

- a. What is the slope?  $\frac{20}{1}$  What does it represent?
- b. What's the y-intercept?  $(0, 50)$  What does it represent?
- c. Make a table showing how much Sara will have.
- d. Define your variables. (what letters do you want to use and what do they mean)
- e. Write an equation to tell how much money Sara will have in.

x	y	Sh
0	50	$50 + 20(0)$
1	70	$50 + 20(1)$
2	90	$50 + 20(2)$

$y = 50 + 20x$

- f. Sara just turned 15, how much money will she have?  $\$350$
- $y = 50 + 20(15) =$

2. I bought a bag of candy that weighs 32 ounces. Each candy inside weighs 2.5 ounces. I am hungry and I start eating my candy.

- a. Define your variables. (what letters do you want to use and what do they mean)
- b. Write an equation to tell how the amount of candy I will have.

- c. What is the x-intercept?  $(16, 0)$  What does it mean?

$b = 32 - 2c$

$0 = 32 - 2c$

$-32 = -2c \quad c = 16$

Aug 31-7:36 PM

# Questions on Homework



Aug 31-7:36 PM

**1C Interception**  
NO WORK, NO CREDIT, PENCIL ONLY.

Name \_\_\_\_\_ Per: \_\_\_\_\_

Find the y-intercept from the tables: Don't forget to list as a coordinate point. For EC, find x-intercepts.

1. 

X	Y
2	7
0	1
5	16

*m = -2, y = 3x + 1, 0 = 3x + 1, x = -1/3*

2. 

X	Y
1	-3
4	9
0	-7

3. 

X	Y
3	7
6	13
7	15

4. 

X	Y
5	23
4	21
3	19

**EXAMPLE:**

X	Y
2	5
-2	13
-6	21

Slope = -2  
 $y = -2x + b$   
 $5 = -2(2) + b$   
 $5 = -4 + b$   
 $+4 = +4$   
 $9 = b$   
 y-intercept = (0, 9)

Find the slope and intercepts from the following points and then write the equation of the line that goes through the two given points.

EX: (0, 1) and (2, 7)    5. (3, 6) and (0, 8)    6. (3, 7) and (6, 13)    7. (4, 8) and (2, 5)

X	Y
0	3
2	7

*-3 < 3, 6 > 2, y = -3/2x + 8, 0 = -3/2x + 8, -8 = -3/2x, x = 16/3*

Slope:  $\frac{2}{1}$  or 2  
 y-intercept: (0, 3)  
 x-intercept:  $(-\frac{3}{2}, 0)$   
 Eq:  $y = 2x + 3$

Slope:  $-\frac{3}{2}$   
 y-intercept: (0, 8)  
 x-intercept:  $(\frac{16}{3}, 0)$   
 Eq:  $y = -\frac{3}{2}x + 8$

Slope: \_\_\_\_\_  
 y-intercept: \_\_\_\_\_  
 x-intercept: \_\_\_\_\_  
 Eq: \_\_\_\_\_

Slope: \_\_\_\_\_  
 y-intercept: \_\_\_\_\_  
 x-intercept: \_\_\_\_\_  
 Eq: \_\_\_\_\_

Find the equation from the given point and slope.

EX: Slope = 2 & point (6, 1)    8.  $m = \frac{1}{2}$  & point (4, -2)    9.  $m = -5$  & point  $(\frac{1}{5}, 8)$

$1 = 2(6) + b$   
 $1 = 12 + b, so, b = -11$   
 $y = 2x - 11$

$y = \frac{1}{2}x + b$   
 $-2 = \frac{1}{2}(4) + b$   
 $-2 = 2 + b$   
 $-4 = b$   
 $y = \frac{1}{2}x - 4$

$8 = -5(\frac{1}{5}) + b$   
 $8 = -1 + b$   
 $9 = b$   
 $y = -5x + 9$

Find the y-intercept and x-intercept of the following equations:

10.  $y = -18 - 2x$     11.  $3x + 6 = y$

y-intercept: (0, -18)    x-intercept: (-9, 0)

y-intercept: \_\_\_\_\_    x-intercept: \_\_\_\_\_

12.  $3x + 5y = -15$     13.  $4x - 12y = 16$     14.  $8y + 6x = 2$

y-intercept: \_\_\_\_\_    x-intercept: \_\_\_\_\_    y-intercept: \_\_\_\_\_    x-intercept: \_\_\_\_\_

**EXAMPLE:**  $6x + y = -3$   
 y-intercept is when  $x = 0$ ,  $6(0) + y = -3$ ,  $y = -3$ , (0, -3)  
 x-intercept is when  $y = 0$ ,  $6x + (0) = -3$ ,  $6x = -3$ ,  $x = -\frac{1}{2}$ ,  $(-\frac{1}{2}, 0)$

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Find the slope, y-intercept and equation of the line in the following graphs:

15. Slope: -1/2  
y-int: (0, 2)  
x-int: (2, 0)  
Eq:  $y = -\frac{1}{2}x + 2$

16. Slope: \_\_\_\_\_  
y-int: \_\_\_\_\_  
x-int: \_\_\_\_\_  
Eq: \_\_\_\_\_

17. Slope: \_\_\_\_\_  
y-int: \_\_\_\_\_  
x-int: \_\_\_\_\_  
Eq: \_\_\_\_\_

18. Slope: \_\_\_\_\_  
y-int: \_\_\_\_\_  
x-int: \_\_\_\_\_  
Eq: \_\_\_\_\_

19. Find the slope of line x.  $m = \frac{4}{3}$

20. Plot #19 on the grid and draw the squares to find the length of the hypotenuse.  $x = \sqrt{4^2 + 3^2} = \sqrt{16 + 9} = \sqrt{25} = 5$

21. Find the length of x.  $x = \sqrt{13^2 - 12^2} = \sqrt{169 - 144} = \sqrt{25} = 5$

For #22 and #23, graph 2 equations each on the coordinate grids.

22.  $y = -\frac{3}{2}x + 4$   
 $y = \frac{2}{3}x + 1$

23.  $y = -2x - 2$   
 $y = -2x + 1$

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## Grade Homework 1C Interceptions

Aug 31-7:45 PM

## Lesson 1D Word

From SG:

Find the Equation in Slope/Intercept Form *from a Story Problem*

- Delete any non-pertinent information (distractors).
- Hint: Draw an actual picture of the story problem to help visualize what is happening.
- Define what the independent and dependent (x and y) variables represent.
- Organize the information/data in a table.
- Find the equation from the table (see steps above).

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What is a dependent variable? *The output*

*Needs input*

*Affected by the independent variable*

What is an independent variable?

*Is the input.*

*Not affected by any other variable*

Aug 31-9:23 PM

1. Lin is tracking the progress of her plant's growth. Today the plant is 5 cm high. The plant grows 1.5 cm per day.

What is the slope of the equation representing the growth of the plant?

$$m = 1.5$$

What does the slope represent in context of the problem?

*daily growth of the plant*

Aug 31-9:31 PM

1. Lin is tracking the progress of her plant's growth. Today the plant is 5 cm high. The plant grows 1.5 cm per day.

What is the y-intercept?

$(0, 5)$

What does the it represent in the story?

The point where Lin starts tracking the plants growth.

Aug 31-9:33 PM

1. Lin is tracking the progress of her plant's growth. Today the plant is 5 cm high. The plant grows 1.5 cm per day.

Define your dependent variable:

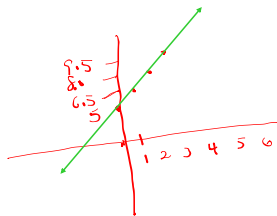
$d = \# \text{ of days}$   
 $g = \text{height of the plant.}$

Define your independent variable:

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1. Lin is tracking the progress of her plant's growth. Today the plant is 5 cm high. The plant grows 1.5 cm per day.

Create a table and a graph that fits the situation.



x	pattern	y	sh
0	5	5	$5 + 1.5(0)$
1	$5 + 1.5$	6.5	$5 + 1.5(1)$
2	$5 + 1.5 + 1.5$	8.0	$5 + 1.5(2)$
X			$y = 5 + 1.5(x)$

Aug 31-9:40 PM

1. Lin is tracking the progress of her plant's growth. Today the plant is 5 cm high. The plant grows 1.5 cm per day.

What is the x-intercept?

$$0 = 5 + 1.5(x)$$

$$-5 = 1.5x$$

$$-3\frac{1}{3} = x$$

What does it represent in the story?

The plant started growing  $3\frac{1}{3}$  days before Lin started her experiment.

Aug 31-9:35 PM

1. Lin is tracking the progress of her plant's growth. Today the plant is 5 cm high. The plant grows 1.5 cm per day.

How long will it take for Lin's plant to reach 10cm?

$$\begin{aligned}10 &= 5 + 1.5x \\5 &= 1.5x \\3\frac{1}{3} &= x \\&= 3\frac{1}{3} \text{ days.}\end{aligned}$$

Aug 31-9:37 PM

1. Lin is tracking the progress of her plant's growth. Today the plant is 5 cm high. The plant grows 1.5 cm per day.

If the plant has grown for 3 weeks, how high would the plant be?

$$\begin{aligned}3 \times 7 &= 21 \text{ days} \\y &= 5 + 1.5(21) = 36.5 \text{ cm}\end{aligned}$$

Aug 31-9:38 PM

1. Lin is tracking the progress of her plant's growth. Today the plant is 5 cm high. The plant grows 1.5 cm per day.

What is the slope of the equation representing the height of the plant?

What does the y-intercept represent in the story?

*how much the plant grows every day*

*The point where Lin began tracking the growth of the plant.*

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Solve the following for "y" and list the slope and y-intercept:

$$12x - 5y - 2 = 9$$

$$\begin{array}{r} -12x \quad +2 \quad +2 \quad -12x \\ -5y = \frac{11}{-5} + \frac{12x}{-5} \end{array}$$

Solve:

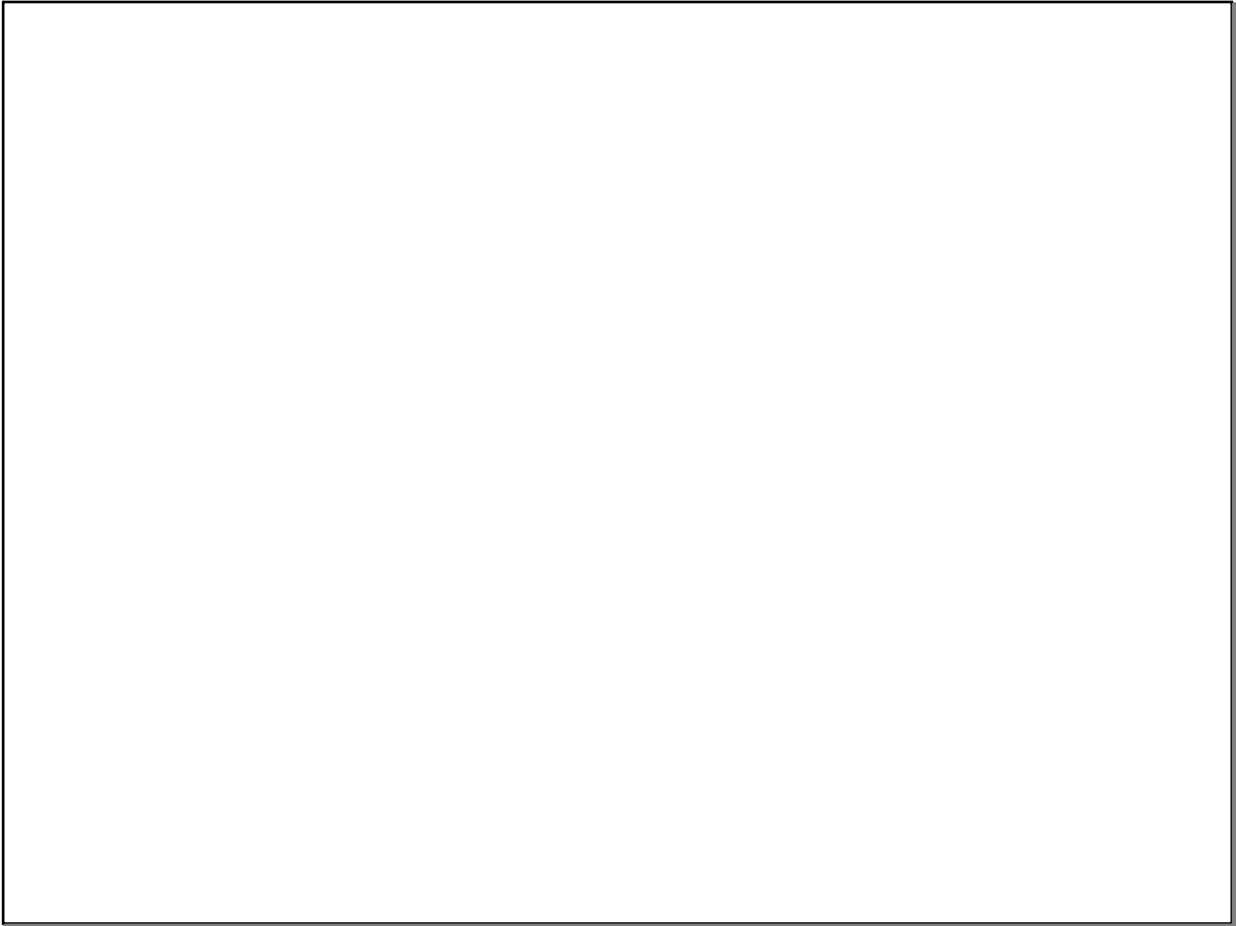
Slope:  $m = -\frac{2}{5}$

y-intercept:  $y_{int} (0, -\frac{11}{5})$

x-intercept:  $0 = -\frac{2}{5}x - \frac{11}{5} \rightarrow -\frac{11}{2} = x \quad (-\frac{11}{2}, 0)$

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