

Opener

1. Explain how you know from their slopes whether the lines on the graph are parallel: the same
 perpendicular: slopes are neg. reciprocals, or neither: Slopes are not the same & are not neg. reciprocals

2. a. Write any equation that would be **perpendicular** to the line $y = -3x - 5$

$$m = \frac{1}{3} \quad y = \frac{1}{3}x + 5 \quad \sim \text{Varies}$$

- b. Write an equation from **a** that passes through the point $(2, -3)$.

$$-3 = \frac{1}{3}(2) + b \Rightarrow -3 = \frac{2}{3} + b \Rightarrow -3 - \frac{2}{3} = b \Rightarrow b = -3\frac{2}{3} \text{ or } -\frac{11}{3}$$

$$y = \frac{1}{3}x - \frac{11}{3}$$

- c. What are the x-intercept of the equation found in **a** and **b**?

a) $y = -3x - 5$

$$0 = -3x - 5$$

$$5 = -3x$$

$$-\frac{5}{3} = x$$

$$x_{\text{int}}(-\frac{5}{3}, 0)$$

b) $y = \frac{1}{3}x - \frac{11}{3}$

$$0 = \frac{1}{3}x - \frac{11}{3}$$

$$\left(\frac{3}{1}\right)\left(\frac{11}{3}\right) = \frac{1}{3}x\left(\frac{3}{1}\right)$$

$$11 = x$$

$$x_{\text{int}}(11, 0)$$

Sep 8-12:56 AM

Questions on Homework, 1E Train Tracks

Sep 8-12:56 AM

1E Train Tracks

NO WORK, NO CREDIT. PENCIL ONLY.

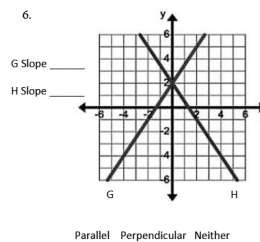
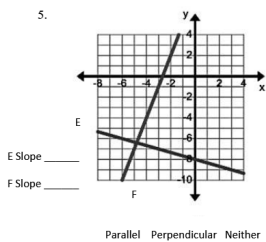
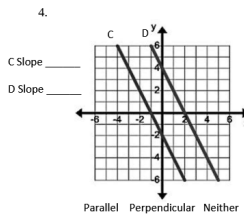
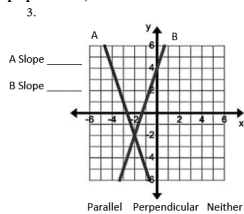
Name: _____ Per: _____

1. Find the **negative reciprocal** of the following

- a. $\frac{2}{3}$ b. $-\frac{1}{5}$ c. $\frac{3}{5}$ d. 7

2. Explain how you know from their slopes whether the lines on the graph are parallel; perpendicular; or neither: _____.

Given the graphs below, find the **slope** of each line and then circle whether the lines are **parallel**, **perpendicular**, or **neither**.



Tell whether the following lines are **parallel**, **perpendicular**, or **neither** given the equations below. SYW.

7. $y = -2x + 5$ and $y = 2x - 3$ 8. $-8y = 3x - 16$ and $6y = 16x - 9$

Explain how you know that the lines through the points are **parallel**, **perpendicular**, or **neither**.

EX: Line A (2, 5) & (-2, 7); Line B (0, 4) & (1, 6) 9. Line C (1, 2) & (5, 4); Line D (0, 3) & (2, 4)

Slope of Line A: $-\frac{1}{2}$
Slope of Line B: 2

The slopes of Line A and Line B are negative reciprocal, so the lines are **perpendicular**

10. (0, -5) and (2, -4); (-1, -5) and (1, -6) 11. (0, 2) and (-4, 8); (-4, 0) and (4, -12)

Write equations for the following:

12. a. Write any equation that would be **parallel** to the line $y = -\frac{1}{2}x + 6$. _____

b. Write an equation from 12a that passes through the point (10, 4). _____

13. a. Write any equation that would be **parallel** to the line $2y = 3x - 8$. _____

b. Write an equation from 13a that passes through the point (6, -1). _____

14. a. Write any equation that would be **perpendicular** to the line $y = -\frac{1}{2}x + 6$. _____

b. Write an equation from 14a that passes through the point (10, 4). _____

15. a. Write any equation that would be **perpendicular** to the line $2y = 3x - 8$. _____

b. Write an equation from 15a that passes through the point (6, -1). _____

Solve for x.

16. $3(x + 6) = x + 2$

17. $\frac{1}{3}x + 9 = 2(22 - x)$

Grade 1E Train Tracks

Sep 8-4:34 AM

Lesson 1R Review

~~Tammy wrote a check that bounced. The bank charged her a \$25 insufficient funds fee which made her account be-
overdrawn by \$55. Tammy went shopping and found a \$100 pair of Rock Revival jeans. She has a lawn mowing job that
pays her \$30 a week. She decides to put \$20 into the bank from that money to pay off the over draft and save for the
jeans.~~

per week

- a. Write an equation to show how much money she has in the bank at any time.

$$y = 20x - 55$$

- b. What is the slope of the equation? 20 What does it mean in context?

Putting \$20 into bank ea. wk.

- c. If she wants to wear th jeans in 12 weeks, will she have enough money to buy them?

$$\begin{array}{r} 240 \\ - 55 \\ \hline 185 \end{array}$$

$$\begin{aligned} y &= 20(12) - 55 \\ y &= 240 - 55 \\ y &= 185 \end{aligned}$$

Yes, she would have plenty of money to buy the jeans in 12 weeks.

Sep 8-1:00 AM

Tammy wrote a check that bounced. The bank charged her a \$25 insufficient funds fee which made her account be overdrawn by \$55. Tammy went shopping and found a \$100 pair of Rock Revival jeans. She has a lawn mowing job that pays her \$30 a week. She decides to put \$20 into the bank from that money to pay off the over draft and save for the jeans.

d. What is the y-intercept? $(0, -55)$ What does it mean in the context? Overdrawn \$55

e. How long will it take her to have enough money in the bank to buy the jeans?

$$100 = 20x - 55 \Rightarrow 155 = 20x \Rightarrow 7.75 = x, \text{ so } 8 \text{ weeks}$$

f. Show how to find the x-intercept:

$$0 = 20x - 55$$

g. What is the x-intercept? $(2.75, 0)$ What does it mean in context? In 3 weeks Tammy will have 0 balance in her acct.

h. How would the equation change if she wants to buy 2 pairs of these jeans?

The equation will not change.

i. How many weeks will it take her to save enough money to buy 2 pairs of these jeans?

$$2 \text{ pairs} = \$200$$

$$200 = 20x - 55$$

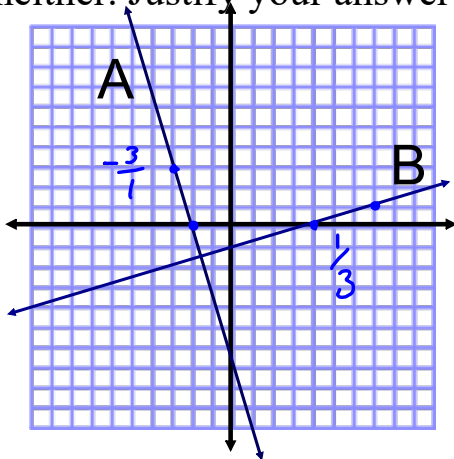
$$255 = 20x$$

$$12.75 = x$$

It will take her 13 weeks to earn enough money to buy 2 pairs.

Sep 8-3:53 AM

Tell how you know if the following are parallel, perpendicular, or neither. Justify your answer below mathematically.



$m_A = -3$ They are negative
 $m_B = \frac{1}{3}$ reciprocals, so
 these lines are perpendicular.

Write the equation for line B:

$$m = \frac{1}{3} \text{ yint } (0, -1)$$

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

Sep 8-3:35 AM

Given the tables below, tell which are linear and how you know. If they are linear, write the equation. EC. Write all the equations also.

X	Y
-2	10
5	-3
8	6
4	-1

Handwritten annotations: $\Delta x = 7, 3, -4$; $\Delta y = -13, 9, -7$. Slopes: $-\frac{13}{7}, \frac{3}{1}, \frac{7}{4}$.

Slope is not constant,
NOT LINEAR

X	Y
0	-11
2	-8
4	-5

Handwritten annotations: $\Delta x = 2, 2$; $\Delta y = 3, 3$. Slopes: $-\frac{3}{2}, -\frac{3}{2}$.

The slope is constant,
LINEAR

Sep 8-4:14 AM

Find the equations of the lines through the following points and list the slope, y-intercept, and x-intercept.

a. (-2,0) and (4,-6)

Handwritten work for part a:

$$m = \frac{-6 - 0}{4 - (-2)} = \frac{-6}{6} = -1$$

$$0 = +1(-2) + b \implies b = -3$$

$$y = -x - 3$$

Y-intercept: (0, -3)
X-intercept: (3, 0)

b. (3,2) and (1,7)

Handwritten work for part b:

$$2 = -\frac{5}{2}(3) + b \implies b = \frac{19}{2}$$

$$y = -\frac{5}{2}x + \frac{19}{4}$$

Y-intercept: (0, $\frac{19}{4}$)
X-intercept: ($-\frac{19}{10}$, 0)

Are the lines parallel, perpendicular, or neither? Explain.

Neither parallel or perpendicular, because the slopes are not the same and they are not negative reciprocals.

Handwritten verification for perpendicularity:

$$(-\frac{5}{2}) \times (-\frac{19}{4}) = \frac{95}{8} \neq -1$$

$$-\frac{19}{10} = x$$

Sep 8-4:19 AM

Write equations for the following:

- a. Write any equation that would be **parallel** to the line $y = -3x - 5$

$$y = -3x + 6 \quad \text{--- Various answers.}$$

- b. Make your equation from **a** pass through the point $(-8, 2)$

$$m = -3 \quad 2 = (-3)(-8) + b \quad y = -3x - 24$$

$$2 = 24 + b$$

$$-22 = b$$

Sep 8-4:23 AM

Write equations for the following:

- a. Write any equation that would be **perpendicular** to the line $-3x = 6y - 4$

$$y = 2x + 9$$

$$\frac{1}{2}x + \frac{2}{3} = y \quad \leftarrow \frac{-3x + 4}{6} = \frac{6y}{6}$$

Handwritten notes: slope of original line is $m = -\frac{1}{2}$. Perpendicular slope is 2 .

- b. Make your equation from **a** pass through the point $(8, 3)$.

$$m = 2 \quad \leftarrow \text{Slope that's perpendicular to } y = -\frac{1}{2}x + \frac{2}{3}$$

$$3 = 2(8) + b \quad y = 2x - 13$$

$$3 = 16 + b$$

$$-13 = b$$

Sep 8-4:28 AM

Attachments

1E Train Tracks KEY.pdf

1E Train Tracks KEY.notebook