1st 5

1) Write the equation for the direct variation that passes through (- 3, 2)

$y = kx$ $k = -\frac{2}{3}$ $y = -\frac{2}{3}x$

$2 = k(-3)$

2) Find the missing coordinate for the direct variation that passes through (- 3, 2) and (x, 6)

$y = kx$ ② $y = -\frac{2}{3}x$

$2 = k(-3)$ ② $\frac{-3}{2} \cdot \frac{6}{1} = -\frac{2}{3}x \cdot \frac{-3}{2}$

$-\frac{2}{3} = k$

② $-9 = x$

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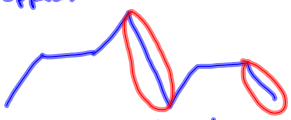
1) places where the student has stopped.

2) 

3) places where he has stopped

4) places where he is getting closer to home

5) he is traveling away from home

Relations and Functions Day 7

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1) yes; 5

2) $y = -4x$ yes; -4

3) NO

4) NO

5) $y = 3x$ yes; 3

6) yes; $\frac{3}{5}$

7) $y = \frac{3}{2}x$ yes; $\frac{3}{2}$

8) $y = \frac{5}{2}x + \frac{9}{2}$ NO

9) $y = -2x + 3$ NO

10) $y = 2x$ yes; 2

11) $y = \frac{1}{3}x - 2$ NO

12) $y = -\frac{9}{5}x$ yes; $-\frac{9}{5}$

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13) $y = \frac{2}{3}x$ $y = 4$

14) $y = -4x$ $x = -3$

15) $y = \frac{3}{7}x$ $y = 3$

16) $y = -\frac{8}{3}x$ $x = -3$

17) $y = \frac{5}{3}x$ $y = 5$

18) $y = \frac{3}{2}x$ $y = 3$

19) $y = -\frac{3}{4}x$ $x = -8$

20) $y = 4x$ $y = 12$

21) $y = 3x$ $x = 2$

22) $y = 2x$ $x = 4.5$

23) $y = \frac{25}{24}x$ $y = 2.5$

24) $y = \frac{1}{3}x$ $x = -6$

Relations and Functions Day 7

8) $-5x + 2y = 9$

$+5x \quad +5x$

$\frac{2y}{2} = \frac{5x + 9}{2}$

$y = \frac{5}{2}x + \frac{9}{2}$

NO

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25) $y = 2x$ yes

26) $y = \frac{2}{3}x$ yes

27) NO

28) $y = 1.4x$ yes

$y = kx$ Direct variation

$k = \frac{y}{x}$

(4, 2)

1. find k $k = \frac{2}{4} = \frac{1}{2}$

2. write eq. $y = \frac{1}{2}x$

Relations and Functions Day 7

- An equation in the form $xy = k$ OR $y = \frac{k}{x}$ where $k \neq 0$, is an **inverse variation**.

$xy = 10$ $y = \frac{10}{x}$

- The **constant of variation** is *k*.

$(3, 5)$ $xy = 15$

$3 \cdot 5 = k$

$15 = k$

- Writing an Equation Given a Point
  - Suppose y varies inversely with x and y = 7 when x = 5. Write an equation for the inverse variation.

$k = 35$ $xy = 35$

$5 \cdot 7$

$x \cdot y = k$

  - Suppose y varies inversely with x and y=9 when x = 2. Write an equation for the inverse variation

$k = 18$ $xy = 18$

- Finding the Missing Coordinate
  - The points (3,8) and (2,y) are two points on a graph of an inverse variation. Find the missing value.

$k = 3 \cdot 8$

$xy = 24$

$2y = 24$

1. find k
2. write eq
3. Subst & solve

$y = 12$

  - The points (3,y) and (5,9) are two points on a graph of an inverse variation. Find the missing value.

$xy = 45$

$\frac{3y}{3} = \frac{45}{3}$

$y = 15$

- Determining Direct or Inverse Variation
  - Does the data in the table represent a direct variation or inverse variation? For the table, write an equation to model the data.

X	Y
2	5
4	10
10	25

Direct & Inverse?

$k = \frac{y}{x}$

$\frac{5}{2} = 2.5$

$\frac{10}{4} = 2.5$

$\frac{25}{10} = 2.5$

$xy = k$

$2.5 = 10$

$4 \cdot 10 = 40$

NO

- Does the data in the table represent direct variation or inverse variation? For the table, write an equation to model the data.

x	y
5	20
10	10
25	4

Direct or Inverse

$xy = k$

$5 \cdot 20 = 100$

$10 \cdot 10 = 100$

$25 \cdot 4 = 100$

Inverse

$k = y/x$ Direct or Inverse?

X	y
3	12
6	6
9	4

$3 \cdot 12 = 36$

$6 \cdot 6 = 36$

$9 \cdot 4 = 36$

Inverse

$xy = k$

$3 \cdot 12 = 36$

$5 \cdot 20 = 100$

not inverse

X	y
3	12
5	20
8	32

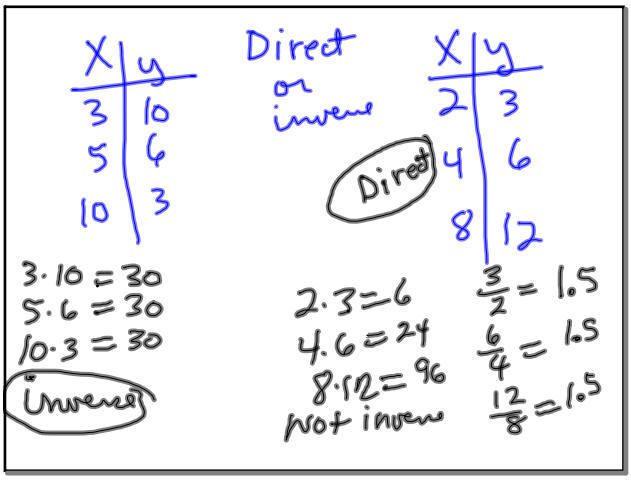
Direct

$k = y/x$

$\frac{12}{3} = 4$

$\frac{20}{5} = 4$

$\frac{32}{8} = 4$



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Do on a separate sheet & turn in.

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