

Warm Up

10/7

Simplify the following (show all your steps):

$$7 - 6(10 - 4 \cdot 2) \div 4$$

$$7 - 6(10 - 8) \div 4$$

$$7 - 6(2) \div 4$$

$$7 - 12 \div 4$$

$$7 - 3$$

$$(4)$$

THE BIG RACE – HEAT 2

In the second heat, Elizabeth, Kaye, and Hannah raced down the track. They knew the winner would compete against the other heat winners in the final race.

- a. When the line representing Kaye's race is graphed, the equation is $y = \frac{2}{3}x + 1$. What was her speed (in meters per second)? Did she get a head start?

$$y = \frac{2}{3}x + 1$$

1 meter head start
↑ speed
2 meters / 3 sec
0.67 meters/sec

- b. Elizabeth's race is given by the equation $y = \frac{3}{4}x + 4$. Who is riding faster, Elizabeth or Kaye? How do you know?

$$y = \frac{12}{16}x + 4 \quad \frac{3}{4} = 0.75$$

$$y = \frac{3}{4}x + 4$$

↑ Elizabeth's speed
↑ speed
 $\frac{2}{3}$ m/s = Kaye's speed
= 0.67 m/s

Elizabeth is faster $0.75 > 0.67$

- c. Just as she started pedaling, Hannah's shoelace came untied! Being careful not to get her shoelace tangled in the pedal, she rode slowly. Hannah's race is represented by the table to the right. At what unit rate was she riding? Write your answer as a unit rate.

Hannah's Race	
Time (sec)	Distance (meters)
14	10
28	14
42	18

$$\frac{\Delta y}{\Delta x} = \frac{4}{14} = \frac{2}{7} = 0.29 \frac{\text{meters}}{\text{sec}}$$

+14 ↙
+14 ↙
} +4
} +4

- d. To entertain the crowd, a clown rode a tricycle in the race described by the equation $y = 20 - x$. Without graphing or making a table, fully describe the clown's ride.

$$y = 20 - x$$

$$= -1x + 20$$

The clown is starting at 20m, the finish line.
↑ going backwards at 1m/s

THE BIG RACE – HEAT 3

Barbara, Mark, and Carlos participated in the third heat of “The Big Race.” Barbara thought she could win with a 3 meter head start even though she only pedaled 3 meters every 2 seconds. Mark began at the starting line and finished the 20 meter race in 5 seconds. Meanwhile, Carlos rode his tricycle so that his distance (y) from the starting line in meters could be represented by the equation $y = \frac{5}{2}x + 1$, where x represents time in seconds.



- a. What is the dependent variable? What is the independent variable?

- b. Using the given information, graph lines for Barbara, Mark, and Carlos on the same set of axes. Who won the 20 meter race and will advance to the final race?

- c. Find equations that describe Barbara’s and Mark’s motion.

- d. How fast did Carlos pedal? Write your answer as a unit rate.

- e. When did Carlos pass Barbara? Confirm your answer algebraically.

Homework

Finish classwork