Name Ryan Date

Quiz: Describing Motion
Matching

Speed = $\frac{d}{t}$

C 1. Motion	a. speed that does not vary
d 2. Distance	b. when an object changes position
b 3. Displacement	c. speed at any given point in time
c 4. Instantaneous speed	d. how far an object has moved
A 5. Constant speed	e. distance and direction of an object's change in position

6. To skate 100 meters in 20 seconds, a skater must skate at a speed of 5 meters per second

7. If a runner maintains a constant speed of 12 miles/hour, how long will it take to complete a half marathon race of 13.1 miles? 1.0916667

8. If Johnny won a 300 meter race in 40 seconds, his speed would be 7.5 meters per second

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$\frac{12 \text{ mi/h}}{1} = \frac{13.1 \text{ mi}}{x \text{ hours}}$

$\frac{100M}{20S}$ $\frac{300}{40} =$

$40\overline{)300}$

$\frac{12x}{12} = \frac{13.1 \text{ mi}}{12} = \frac{1.0916667}{12}$

$\frac{13.1}{12} - \frac{12x}{12}$

Practice Problems: Acceleration

Directions: Complete the table below.

	Final velocity v_f	Initial velocity v_i	$v_f - v_i$ Δv	Time (t)	$a = \frac{\Delta v}{t}$
1	26 m/s	20 m/s	26m/s - 20m/s	6 s	$A = \frac{26-20}{6}$
2	0 km/s	12 km/s	0 km/s - 12 km/s	4 s	$A = \frac{0-12}{4}$
3	8 m/s	3 m/s	8 m/s - 3 m/s	2 s	$A = \frac{8-3}{2}$
4	46.4 m/s	27.3 m/s	46.4 m/s - 27.3 m/s	11 s	$A = \frac{46.4 - 27.3}{11}$
5	5 m/s	15 m/s	5 m/s - 15 m/s	5 s	$A = \frac{5-15}{5}$

Complete the following word problems. Show your work.

6. A paperboy rode his bike at 3 m/s. After being chased by a dog for 8 seconds, he was traveling 6m/s. What is his acceleration?

$A = .375\ m/s^2$

$a \quad \frac{6-3}{8} = \frac{3}{8} = .375$

$8\overline{)3.0}$ 24 60 56 40

7. A pumpkin is dropped, and after 5 seconds its velocity is 47 m/s. What is its acceleration?

$= 9.4\ m/s^2$ down $\quad \frac{0-47}{5}$ $\quad 5\overline{)47}$ $\quad -45$ $\quad 20$

$-9.4\ m/s^2$ down

$\frac{47-0}{5} = \frac{47}{5} = 5\overline{)47}$ $\quad 9.4$ $\quad -45$ $\quad 20$

6. A soccer player is running at 6 m/s. He then stumbles over an opponent's foot, falls and rolls to a stop. This took 4 seconds. What was his acceleration?

$\frac{6-0}{4}$ $\quad 4\overline{)6}$ $\quad 1.5$ $\quad -4$ $\quad 20$

$1.5\ m/s^2$ down

7. A skateboarder fell doing a jump. She got up and after 5 seconds returned to a velocity of 5 m/s. What was her acceleration?

$\frac{5-0}{5} \quad \frac{5}{5} = 1\ m/s^2$