

UNIT 2 TEST PREP

Name KEY Class _____ Date _____

MULTIPLE CHOICE

mil/hr

$2 \text{ mil} / \frac{2}{5} \text{ hr}$

$2 \div \frac{2}{5}$

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

1. Lauren jogs at a rate of 2 miles every $\frac{2}{5}$ hour. What is her unit rate?

A. 0.4 mi/h **C. 5 mi/h**
B. 2 mi/h D. 10 mi/h

2. The tables show the number of pages that several students read over a four-day period. Which table shows a proportional relationship?

F.

Number of Days	1	2	3	4
Total Pages	16	24	32	40

G.

Number of Days	1	2	3	4
Total Pages	12	24	36	48

H.

Number of Days	1	2	3	4
Total Pages	15	20	25	30

J.

Number of Days	1	2	3	4
Total Pages	8	16	27	36

3. An elevator moves at a constant speed of 20 feet per second. Arturo correctly graphs this proportional relationship on a coordinate plane. Which of the following points lies on Arturo's graph?

A. (0, 20) **C. (1, 20)**
B. (20, 0) D. (20, 1)

4. The table below shows a proportional relationship. One of the cells of the table is covered by a drop of ink. What value is covered by the ink?

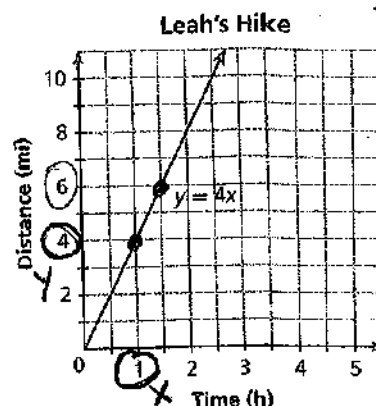
Time (sec)	3	5	11	17
Distance (ft)	10.2	17		57.8

F. 3.4 H. 23
G. 18.2 **J. 37.4**

$$\frac{10.2}{3} = \frac{17}{5} = \frac{57.8}{17} = 3.4$$

$$\text{so } 11 \times 3.4 = 37.4$$

5. What is the constant of proportionality for the proportional relationship shown in the graph?



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

$$\frac{4}{1} = 4$$

A. $\frac{1}{4}$
B. $\frac{1}{2}$

C. 2

D. 4 $\frac{y}{x} = \frac{5.04}{2} = \frac{7.56}{3}$

6. Two pounds of dried cranberries cost \$5.04, 3 pounds of dried cranberries cost \$7.56, and 7 pounds of dried cranberries cost \$17.64. Which equation gives the total cost y of x pounds of dried cranberries?

F. $y = 1.68x$

H. $y = 3.04x$

G. $y = 2.52x$

J. $y = 5.04x$

7. Each yard of a fabric costs \$4.35. A table shows the number of yards of fabric and the total cost of the fabric. Which of the following must be true about the data in the table?

A. The ratio of the total cost to the number of yards is always 4.35.

B. The ratio of the number of yards to the total cost is always 4.35.

C. The total cost is always 4.35 greater than the number of yards.

D. The number of yards is always 4.35 times the total cost.

cost always first!

$$\frac{\text{cost}}{\text{yd}} = \frac{4.35}{1}$$

$\frac{\text{cost}}{\text{yd}} = 4.35$

$x + 4.35$

$x = 4.35y$

8. The manager of a sporting goods store raises the price of a basketball from \$16 to \$18. What is the percent increase?

$$\frac{18-16}{16} = \frac{2}{16} = 0.125$$

F. 1.25%
G. 2%

H. 11.1%
J. 12.5%

9. Three friends have dinner at a restaurant. The total bill for the dinner is \$41. The friends want to leave a 15% tip and they want to divide the tip evenly among themselves. Which is the best estimate of each friend's share of the tip?

What is 15% of 41?
 $x = 15\% \cdot 41$
 $x = 6.15$
 $6.15 \div 3 =$
 $\$2.05$

A. \$2
B. \$3

C. \$4
D. \$6

10. Kalil's monthly salary is \$3,250 plus he earns a 1.4% commission on his sales for the month. Kalil's sales for July were \$51,000. What was his total earning for July?

What is 1.4% of 51,000?
 $x = 1.4\% \cdot 51,000$
 $x = 714$
 $3,250 + 714 =$
 $\$3,964$

F. \$714
G. \$3,964

H. \$7,140
J. \$10,390

FREE RESPONSE

11. A bathtub fills at a constant rate. The amount of water in the tub increases by $\frac{1}{2}$ gallon every $\frac{1}{10}$ minute. What is the unit rate at which the tub fills?

gal/min
 $\frac{1/2}{1/10} = \frac{1/2 \times 10}{1} = 5$

12. In 2000, the population of a town was 50,000. In 2010, the population of the town was 48,000. What is the percent change in the town's population? Is the percent change an increase or a decrease?

$\frac{50000-48000}{50000} = \frac{2000}{50000} = 0.04$

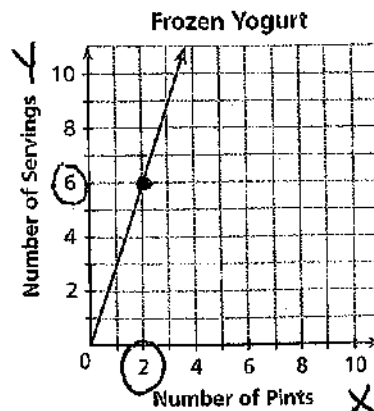
4% change = amount of change / original

13. Explain why a change in price from \$20 to \$10 is a 50% decrease, but a change in price from \$10 to \$20 is a 100% increase.

from \$20 to \$10 \Rightarrow 10 is half of 20 so 50% decrease

from \$10 to \$20 \Rightarrow 100% of 10 is 10, and you are adding 10 to get to 20, so going up 100%.

The graph shows the number of servings in different amounts of frozen yogurt. Use the graph for 14 and 15.



14. Write an equation that gives the number of servings y in x pints of frozen yogurt.

$$y = 3x$$

15. Mallory extends the frozen yogurt graph so that it passes through the point $(8, q)$. What is the value of q ? What does this point represent?

$y = 3x$ so plug 8 in for x
 $y = 3(8) = 24$ so
 $q = 24$. It represents that 8 pints is 24 servings.

16. The table shows the amount of money Tyler earns for mowing lawns. Is the relationship a proportional relationship? Why or why not?

Number of Lawns	1	2	3	4
Amount Earned (\$)	15	30	48	64

$$\frac{y}{x} = a \quad \frac{15}{1} = 15 \quad \frac{30}{2} = 15$$

$$\frac{48}{3} = 16 \quad \frac{64}{4} = 16$$

NO, not proportional because they do not reduce to same thing