Name: _____ Period: ____ Date: _____

CCGPS Math 7th Grade Unit 3 Study Guide — Ratios & Proportional Relationships (Day 1)

MCC7.RP.1 *Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. For example, if a person walks $\frac{1}{2}$ mile in each $\frac{1}{4}$ hour, compute the unit rate as the complex fraction $\left(\frac{1}{2} \cdot \frac{1}{4}\right)$ miles per hour, equivalently 2 miles per hour.*

Determine the best solution and record your answer. "Show All Work"

1. The cost of a tent rental is $160 for 5 days. At this rate, how much does it cost to rent the tent for one day?

   A. $25 B. $30 C. $32 D. $35

2. Sandra bought 3 pounds of nuts for $10.35. What is the unit price per pound?

   A. $3.45 B. $4.65 C. $6.65 D. $7.35

3. A recipe for rice pudding calls for $2\frac{1}{2}$ cups of milk. The recipe makes 5 servings. How many cups of milk are needed to make 8 servings?

A. $3\frac{1}{2}$ cups B. 4 cups C. $4\frac{1}{2}$ cups D. $7\frac{1}{2}$ cups

4. Ms. Sanchez drove 96 miles in 1.5 hours. What was her speed in miles per hour?

   A. 48 miles per hour B. 54 miles per hour C. 64 miles per hour D. 144 miles per hour

5. Which of the follow shows the least expensive unit price?

   A. 3 oranges for $1.02
   B. 4 oranges for $1.52
   C. 5 oranges for $1.75
   D. 6 oranges for $2.46

MCC7.RP.2 *Recognize and represent proportional relationships between quantities.*

Use the function table for questions 6 and 7.

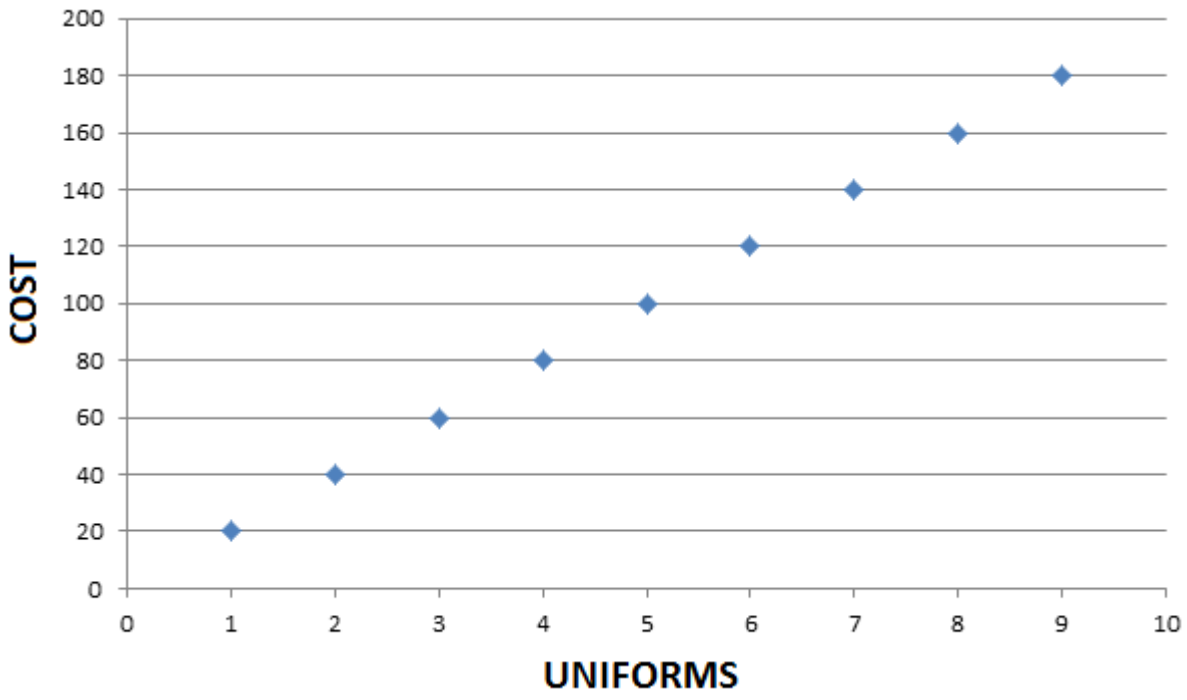
The table shows the relationship between the side lengths of a regular pentagon and its perimeter.

Side Length, s (inches)	Perimeter, p (inches)
1	5
2	10
3	15
4	20
5	25

6. Which equation shows the relationship between the side length and the perimeter of a regular pentagon?

A. $P = s + 5$ B. $P = 5s$ C. $P = \frac{1}{4}s$ D. $P = 5s + 5$

Use the graph for questions 7 – 9.



7. Which equation shows the relationship between the number of uniforms, x, and the cost, y?

A. $y = 20x$ B. $y = 10x$ C. $y = 2x$ D. $y = x$

8. What is the unit cost of a uniform?

A. $2 per uniform B. $5 per uniform C. $10 per uniform D. $20 per uniform

9. How much will it cost the team to order 8 uniforms?

A. $20 B. $140 C. $160 D. $180

MCC7.RP.2a *Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.*

10. What value of x makes this proportion true? $\frac{14}{20} = \frac{56}{x}$

A. x = 62 B. x = 70 C. x = 80 D. x = 100

11. Which table represents a proportional relationship?

A.

x	3	5	7	9
y	6	9	12	15

B.

x	1	2	6	8
y	5	8	18	45

C.

x	2	6	12	18
y	6	18	36	54

D.

x	2	6	8	12
y	4	8	12	15

Name: _____ Period: ____ Date: _____

CCGPS Math 7th Grade Unit 3 Study Guide — Ratios & Proportional Relationships (Day 2)

Determine the best solution and record your answer. "Show All Work"

MCC7.RP.2a *Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.*

12. What is the constant rate of change of the table below?

Minutes	10	20	30	40
Meters	30	60	90	120

A. 9 meters per minute
B. 6 meters per minute
C. 3 meters per minute
D. 12 meters per minute

13. What value of "w" makes this proportion true? $\frac{0.6}{1.6} = \frac{w}{1.2}$

A. w = 0.45 B. w = 0.8 C. w = 1.6 D. w = 3.2

14. Which pair of ratios does ***not*** form a true proportion?

A. 8:14 and 20:35 B. 6 to 10 and 15 to 25 C. $\frac{9}{4}$ and $\frac{36}{16}$ D. 12:15 and 30:40

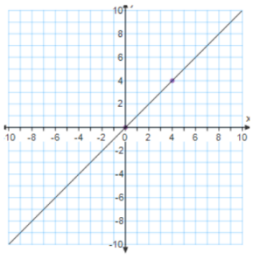
15. What is the solution of the proportion. $\frac{2.1}{c} = \frac{1.5}{1.4}$

A. c = 1.96 B. c = 196 C. c = .196 D. c = 19.6

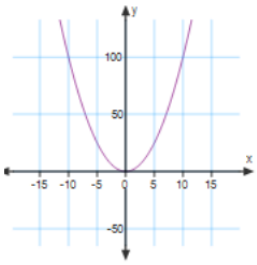
16.

Which graph represents a proportional relationship?

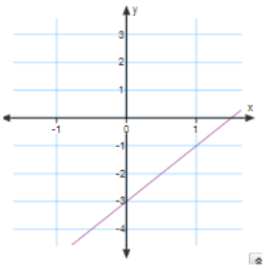
A



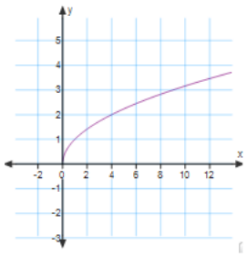
B



C



D



MCC7.RP.2b *Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.*

17. Mrs. Wade drove 105 miles in $2\frac{1}{2}$ hours. What was Mrs. Wade's speed in miles per hour?

A. 35 miles per hour B. 42 miles per hour C. 45 miles per hour D. 52.5 miles per hour

18. A restaurant charges a single price for its buffet. The total bill for a table of 6 people having the buffet was $294. Each of the 8 people at a second table also had the buffet. What was the total bill at the second table?

A. $392 B. $441 C. $490 D. $588

19. Patty knows that a 45-ounce pitcher can hold enough lemonade for 6 people. At this rate, how many ounces of lemonade will Patty need to serve 26 people?

A. 45 ounces B. 71 ounces C. 180 ounces D. 195 ounces

20. On a standardized test, Paul answered the first 22 questions in 5 minutes. There are 77 questions on the test. If he continues to answer questions at the same rate, how long will it take him to complete the test from start to finish?

A. 15 minutes B. 16 minutes C. 16.5 minutes D. 17.5 minutes

MCC7.RP.2c *Represent proportional relationships by equations. For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn.*

21. The table below shows a proportional relationship. What is the constant of proportionality? (hint: what is "k")

X	Y
6	2
9	3
15	5
21	7

A. $\frac{2}{4}$ B. $\frac{3}{1}$ C. $\frac{5}{3}$ D. $\frac{1}{3}$

Name: _____ Period: ____ Date: _____

CCGPS Math 7th Grade Unit 3 Study Guide — Ratios & Proportional Relationships (Day 3)

Determine the best solution and record your answer. "Show All Work"

MCC7.RP.3 *Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.*

22. You and your friend went out to lunch and your total bill (before taxes) was $48.50. You enjoyed your service and want to leave a tip of $20%. What is your tip amount?

B. $7.28 B. $.97 C. $97.70 D. $9.70

23. John went into Home Depot to purchase items to fix his Bicycle. His total bill (before taxes) was $24.20. If the tax rate is 7%. What is his total cost of his purchase?

A. $25.89 B. $2.58 C. $258.90 D. $.258

24. The price of this year model car rose from $12,000 to 14,000. What was the percent increase in the price?

A. 20% B. 1.67% C. 16.67% D. 166.7%

25. Find the percent of change of 1000 ft to 700 ft. Describe the percent of change as an increase or decrease.

A. 10% decrease B. 70% increase C. 30% decrease D. 7% increase

26. A car dealer buys a luxury car for $65,200 and sells it for $85,650. What is the percent of increase in the price of the car? (round to the nearest 10th)

A. 3.14% B. 31.4% C. .314% D. 314%

MCC7.G.1 *Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.*

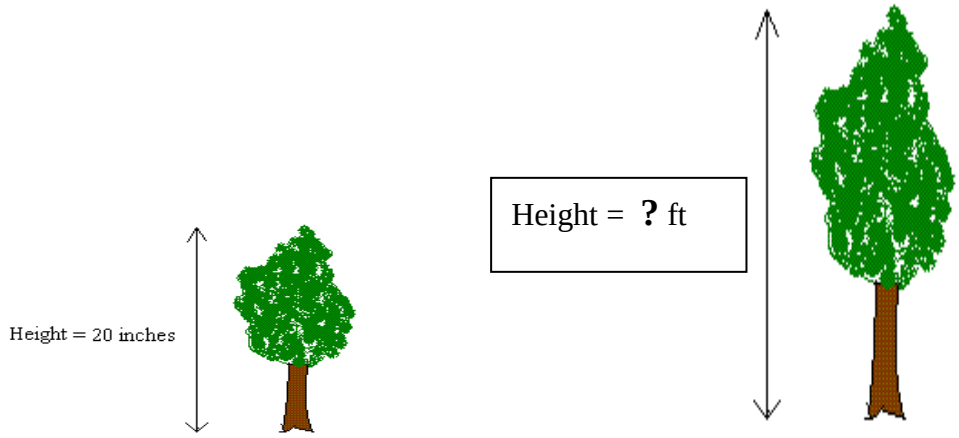
27. The scale of a map is $1\frac{1}{4}$ inches = 100 miles. On that map, two cities are $4\frac{1}{8}$ inches apart. What is the actual distance between the cities?

A. 275 miles B. 330 miles C. 375 miles D. 412.5 miles

28. The length between the bases on a major league baseball diamond is 90 feet. Allyson wants to make a scale drawing of a baseball field. If the bases are $2\frac{1}{2}$ inches apart on her scale drawing, what is Allyson's scale?

A. 1 in. = 2.5 ft B. 1 in. = 3 ft C. 1 in. = 30 ft D. 1 in. = 36 ft

29. The tree shown below was drawn using a scale of 4 in 15 ft. What is the actual height of the tree

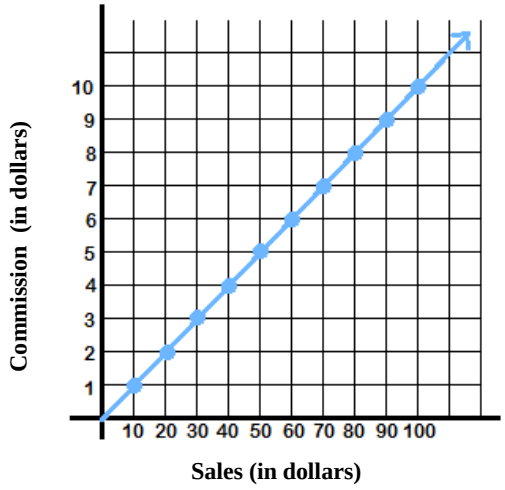


Scale: 4 in to 15 ft

A. 7.5 ft B. 750 ft C. .075 ft D. 75 ft

MCC7.RP.2d *Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r) where r is the unit rate.*

30. The graph below shows the commission Jack earned on his sales. Explain the relationship represented by one of the points (x,y) on the graph.



31. What is the equation represented by the graph above?

A. $y = \frac{60}{6}x$ B. $y = \frac{9}{80}x$ C. $y = \frac{1}{10}x$ D. $y = 10x$