

Name _____

2015 Measurement Study Guide

1. Use the chart below to answer the question.

1 foot	12 inches
1 yard	36 inches
1 yard	3 feet
1 mile	5,280 ft

Lucy is creating hair bows for all her friends. She needs 9 inches of ribbon for each hair bow. She plans on making 20 bows. At the store the ribbons are measured in yards. How many yards of ribbon does Lucy need to buy?

9 inches x 20 bows = 180 total inches of ribbon needed.

Inches → yards (smaller to larger – we divide)

36 inches = 1 yard

180 in ÷ 36 in = 5.... We need 5 yards of ribbon

We can check by multiplying... 5 yards x 36 inches = 180 inches

2. Which numbers complete the following table? Solve for x and y.

1 g	1,000 mg
5 g	X
y	9,000 mg

grams → milligrams (larger to smaller – we multiply)

1 g = 1000 mg

5 g x 1000 mg = 5000 mg... X = 5000 mg

milligrams → grams (smaller to larger – we divide)

1 g = 1000 mg

9000 mg ÷ 1000 mg = 9 g... Y = 9 g

3. Which numbers complete the following table? Solve for x and y.

16 quart	x
y	8 gallons
24 quart	6 gallons

quarts → gallons (smaller to larger – we divide)

4 qt = 1 gal

16 ÷ 4 = 4 gal X = 4 gal

gallons → quarts (larger to smaller – we multiply)

1 gal = 4 qts

8 x 4 = 32 qt.... Y = 32 qts

4. Use the chart below to answer the question.

1 lb	16 oz
10 lbs & 7 oz	? oz

If Bill's rabbit weighs 10 lbs and 7 oz., how many ounces does he weigh in ounces?

pounds → ounces (larger to smaller – we multiply)

1 lbs = 16 oz

10 x 16 = 160 oz.... ? = 160 ounces + 7 ounces = 167 oz.

5. Pat has to be at practice by 6:15 in the afternoon. It takes him 10 minutes to get there coach told him if he came 15 minutes early he would help him with fielding. He checked the traffic report and it said they are doing repairs on the road and traffic was delayed by 25 minutes. What time will he need to leave by?

10 minutes to get there + 15 minutes earlier + 25 minutes delay = 50 minutes before practice
 6:15 - 15 minutes = 6:00 ; 6:00 - 30 minutes = 5:30 ; 5:30 - 5 minutes = 5:25 Pat needs to leave by 5:25 to get to practice by 6:00 which will be 15 minutes early.
 15 min + 30 minutes + 5 minutes = 50 minutes

6. Sandra is loading her backpack for school. She has objects that weigh 13 grams, 1 kilogram and 4 grams. Which is true about the weight of the objects?

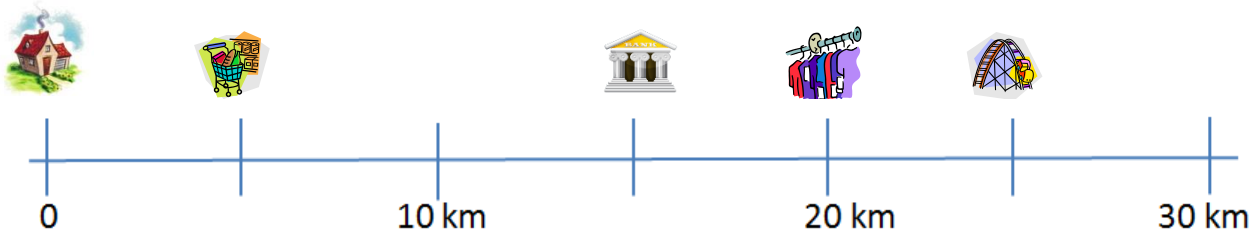
A) 13 grams < 4 grams ← not true

C) 13 grams = 1 kilogram 1 kg = 1000 g
 13 g does NOT = 1000 g

B) 1 kilogram > 4 grams
 1 kg = 1000 g
 So 1000 g > 4 g ?
 YES!

D) 4 grams > 1 kilogram ← 4 g > 1000 g
 no NOT true

7. On Saturday, Melissa went to the amusement park to pick up a job application, then to the dress store to pick up a new dress, back to the amusement park to drop off her job application, then to the bank to get money, to the grocery store to pick up dinner, home to drop off her dinner, back out to the dress store to exchange the dress she picked up earlier, and then finally going back home for good. How far did Melissa go?



Home → Amusement Park = 25 km
 Amusement Park → Dress Store = 5 km
 Dress Store → Amusement Park = 5 km
 Amusement Park → Bank = 10 km

Bank → Grocery Store = 10 km
 Grocery Store → Home = 5 km
 Home → Dress Store = 20 km
 Dress Store → Home = 20 km

$$25 + 5 + 5 + 10 + 10 + 5 + 20 + 20 = \underline{100 \text{ km}}$$

8. Dakota went to the mall. Which item would be measured in pounds?

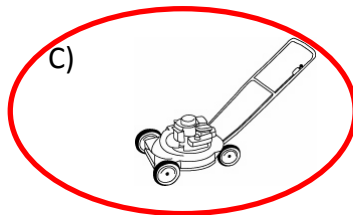
A)



B)



C)



D)



9. Tom fills his hot tub every winter with a hose that pumps 52 liters of water every 3 minutes. If Tom spent 18 minutes adding water, how many liters of water did Tom put in his hot tub?

$18 \text{ minutes} \div 3 \text{ minutes} = 6 \text{ sets of } 3 \text{ minute intervals where the hot tub fills up } 52 \text{ liters}$
 $52 \times 6 = 312 \text{ liters}$

10. In April, Olive swam 18 miles. In May, she swam 48,000 yards. Which month did Olive swim more and how many more **yards** did she swim?

$18 \text{ miles} = ? \text{ yards}$ miles \rightarrow yards (larger to smaller – we multiply)
 $18 \times 1760 = 31,680 \text{ yards}$ vs. $48,000 \text{ yards}$. Olive swam more in May than in April.
 $48,000 - 31,680 = 16,320 \text{ yards more}$

11. Samantha is drying her hair. What is the most reasonable weight of the hair dryer?

A) 6 g B) 10 g **C) 1 kg** D) 10 kg



Convert the following measurements.

12. 15 L = _____ mL

$1 \text{ L} = 1000 \text{ mL}$
 L \rightarrow mL (larger to smaller – we multiply)
 $15 \times 1000 = 15,000 \text{ mL}$

14. 52 km = _____ m

$1 \text{ km} = 1000 \text{ m}$
 km \rightarrow m (larger to smaller – we multiply)
 $52 \times 1000 = 52,000 \text{ m}$

13. 65 kg = _____ g

$1 \text{ kg} = 1000 \text{ g}$
 kg \rightarrow g (larger to smaller – we multiply)
 $65 \times 1000 = 65,000 \text{ g}$

15. 4650 mm = _____ cm

$10 \text{ mm} = 1 \text{ cm}$
 mm \rightarrow cm (smaller to larger – we divide)
 $4650 \div 10 = 465 \text{ cm}$

16. Matt carries his paper across the room to his teacher. What is the most reasonable weight of the paper?

A) 2 oz B) 20 oz C) 2 lbs D) 20 lbs

17. Cindy is $1 \frac{1}{2}$ meters tall. Kristen is 153 cm tall. Who is taller? **Prove your answer.**

$1 \text{ m} = 100 \text{ cm}$
 m \rightarrow cm (larger to smaller – we multiply)
 $1.5 \times 100 = 150 \text{ cm}$ half of 100 = 50

150 cm vs. 153 cm
Kristen is taller by 3 cm

18. Bob drove his golf cart 9 miles. How many feet did he drive?

mi \rightarrow ft (larger to smaller – we multiply)

$$1 \text{ mi} = 5280 \text{ ft}$$

$$9 \times 5280 = 47,520 \text{ ft}$$

19. The perimeter of a rectangle is 76 feet. If the length is equal to 11 feet, what is the width equal to?

Show Work

Perimeter = sum of all sides

$$11 + 11 + ? + ? = 76 \text{ feet}$$

$$22 + ? + ? = 76 \text{ feet}$$

$$76 \text{ feet} - 22 = 54 \text{ feet}$$

$$? + ? = 54 \rightarrow \text{half of } 54 = \underline{27 \text{ feet}}$$

$$\text{check } 11 + 11 + 27 + 27 = 76 \text{ feet.}$$

11 ft



20. Joe needs to buy paint to cover 4 wall. Each wall is 15 ft by 12 ft. How much area does the paint need to cover? **Remember the units**

Area = length x width

$$15 \times 12 = 180 \text{ sq ft} \quad \times 4 \text{ walls} = \underline{720 \text{ sq. ft.}}$$

21. Cameron started running at 9:45 a.m. He reached the park at 10:25. He ran around the track for 15 minutes. He then took half an hour to run home. What time did he get home?

$$15 \text{ minutes} + \text{half an hour (30 minutes)} = 45 \text{ minutes.}$$

$$45 \text{ minutes} = 5 \text{ minutes} + 30 \text{ minutes} + 10 \text{ minutes}$$

$$10:25 + 5 \text{ minutes} = 10:30 + 30 \text{ minutes} = 11:00 + 10 \text{ minutes} = \underline{11:10 \text{ am.}}$$

Solve the following. SHOW WORK.

$$21. \frac{4}{9} + \frac{8}{9} = \frac{12}{9} = 1\frac{3}{9} = 1\frac{1}{3}$$

24. What is the place of the digit 8 in the number

Tens place

6,492,082?

22. Write as a mixed number. $\frac{62}{4}$

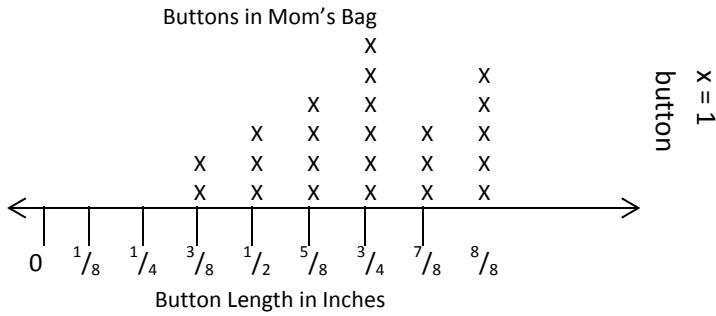
$$62 \div 4 = 15\frac{2}{4} = 15\frac{1}{2}$$

23. Write the following in expanded form. **20.07**

$$20 + .07$$

Use the line plot below for questions 25- 27

Amber's mom asked her to help sort a bag of buttons. She made the following line plot to show the different sizes of buttons she found.



25. How many buttons measured less than 1 inch?

- a) 5 b) 3 c) 23 **d) 18**

26. How much longer is the longest button than the shortest button?

- a) $\frac{3}{8}$ inches **b) $\frac{5}{8}$ inches** c) $\frac{7}{8}$ inches d) 2 inches

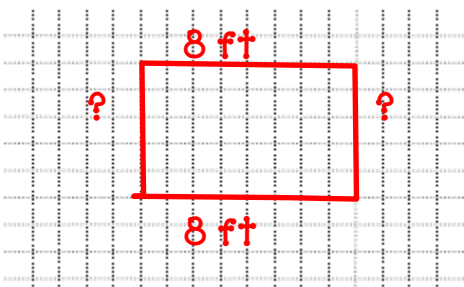
27. If Amber laid the one inch button end-to-end, how long would the line of buttons be?

- a) $\frac{4}{8}$ inches
 b) $\frac{20}{8}$ inches
 c) $\frac{25}{8}$ inches
d) 5 inches

28. Would you use Area (A) or Perimeter (P)? Circle your answer.

- a. To measure the amount of carpet needed to cover your bedroom floor. P or **A**
- b. To measure the amount of fencing you need for the front yard. **P** or A
- c. To measure the amount of wallpaper border you need. **P** or A
- d. To measure the amount of paint to paint your kitchen. P or **A**

29. Bryan calculates that he needs 40 feet of chicken wire to make a cage for his rabbit. If the cage is 8 feet wide, how many feet long is the cage? _____ Draw and label a diagram to show how you know.



Perimeter of Rectangle = add all sides

$$40 \text{ ft} = 8 \text{ ft} + 8 \text{ ft} + ? + ?$$

$$40 \text{ ft} = 16 \text{ ft} + ? + ?$$

$$40 - 16 = 24 \text{ ft. There are 2 sides that must equal 24 ft}$$

$$\text{Therefore: } 24 \div 2 = 12. \text{ The cage is 12 ft long}$$

30. Jill wants to paint one wall of her room blue. The wall is 32 feet wide, 10 feet high, and has no doors or windows. A quart of paint covers 80 square feet.

Will two quarts of paint be enough to paint her wall? _____ Explain how you know

Area of Rectangle = multiply 2 adjacent sides

$$\text{Wall is: } 32 \text{ ft} \times 10 \text{ ft} = 320 \text{ sq ft}$$

Quart of paint only covers 80 sq ft \rightarrow 2 qts = 160 sq ft.

No, 2 quarts will not be enough

31. Stella puts wallpaper border around the top of her bedroom. If her bedroom measures 17 feet by 12 feet, how much wallpaper border will she use? _____

Perimeter = add all sides

$$\text{bedroom} = 17 \text{ ft} + 12 \text{ ft} + 17 \text{ ft} + 12 \text{ ft} = 58 \text{ ft}$$

32. Monica has a table that measure 36 inches by 27 inches. Which expression would Monica use to find how many one-inch tiles she needs to cover the top?

a. $36 + 36 + 27 + 27$

c. $27 \times 36 \times 2$

b. 27×36

d. $27 + 36$

Area of rectangle = multiply 2 adjacent sides

Area = Length \times Width

33. How many square inches will Monica need for her table? Answering question #32 _____

$$36 \text{ in} \times 27 \text{ in} = \text{area of table} = 972 \text{ sq inches of one-inch tiles}$$