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 evening. 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?

0   10 km   20 km   30 km
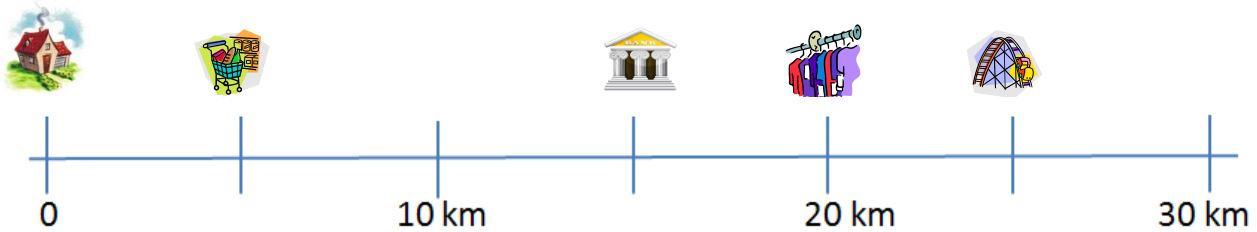
Home → Amusement Park = 25 km
Amusement Park → Dress Store = 5 km
Dress Store → Amusement Park = 5 km
Amusement Park → Bank = 10 km

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 = 100 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 minutes ÷ 3 minutes = 6 sets of 3 minute intervals where the hot tub fills up 52 liters
52 x 6 = 312 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 miles = ? yards miles → yards (larger to smaller – we multiply)

18 x 1,760 = 31,680 yards vs. 48,000 yards. Olive swam more in May than in April.
48,000 – 31,680 = 16,320 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 L = 1000 mL
L → mL (larger to smaller – we multiply)
15 x 1000 = 15,000 mL

13. 65 kg = _____ g

1 kg = 1000 g
kg → g (larger to smaller – we multiply)
65 x 1000 = 65,000 g

14. 52 km= _____ m

1 km = 1000 m
km → m (larger to smaller – we multiply)
52 x 1000 = 52,000 m

15. 4,650 mm= _____ cm

10 mm = 1 cm
mm → cm (smaller to larger – we divide)
4650 ÷ 10 = 465 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 ½ meters tall. Kristen is 153 cm tall. Who is taller? **Prove your answer.**

1 m = 100 cm
m → cm (larger to smaller – we multiply)
1.5 x 100 = 150 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 → ft (larger to smaller – we multiply)
1 mi = 5280 ft
9 x 5,280 = 47,520 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 feet

22 + ? + ? = 76 feet
76 feet – 22 = 54 feet
? + ? = 54 → half of 54 = 27 feet   check 11 + 11 + 27 + 27 = 76 feet.

11 ft

?

20. Joe needs to buy paint to cover **4 walls**. 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 x 12 = 180 sq ft   x 4 walls = 720 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 minutes + half an hour (30 minutes) = 45 minutes.
45 minutes = 5 minutes + 30 minutes + 10 minutes

10:25 + 5 minutes = 10:30 + 30 minutes = 11:00 + 10 minutes = 11:10 am.

Solve the following. SHOW WORK.

22. $\dfrac{4}{9} + \dfrac{8}{9} =$ $^{12}/_9$ = $1^3/_9$ = $1^1/_3$

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

Tens place   6,492,082?

23. Write as a mixed number. $\dfrac{62}{4}$

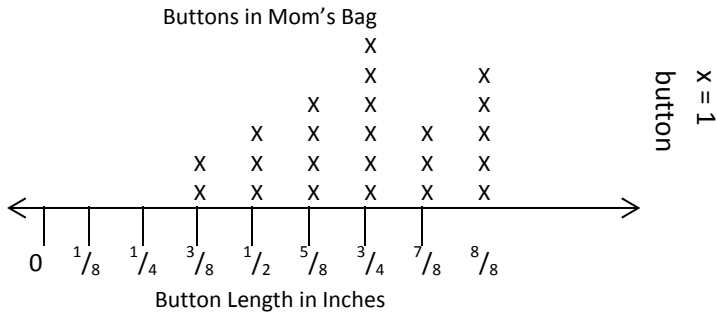62 ÷ 4 = $15^2/_4$ = $15^1/_2$

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

20 + .07

Use the line plot below for questions 26- 28

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.

Buttons in Mom's Bag

```
                 X
                 X        X
            X    X        X
       X    X    X    X   X
  X    X    X    X   X    X
  X    X    X    X   X    X
←——┼————┼————┼————┼————┼————┼————┼————┼————┼———→
   0   ¹/₈  ¹/₄  ³/₈  ¹/₂  ⁵/₈  ³/₄  ⁷/₈  ⁸/₈
```

Button Length in Inches

X = 1 button

26. How many buttons measured less than 1 inch?

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

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

   a) ³/₈ inches   **b) ⁵/₈ inches**   c) ⁷/₈ inches   d) 2 inches

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

   a) ⁴/₈ inches

   b) ²⁰/₈ inches

   c) ²⁵/₈ inches

   d) 5 inches

29. 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)**

30.   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.

8 ft
?   ?
8 ft
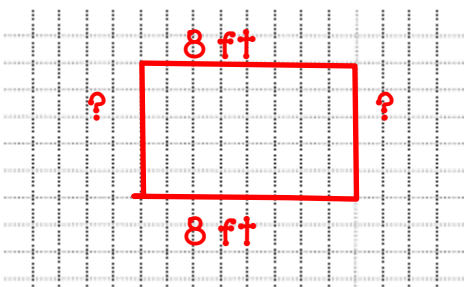
Perimeter of Rectangle = add all sides

40 ft = 8 ft + 8 ft + ? + ?

40 ft = 16 ft + ? + ?

40 – 16 = 24 ft. There are 2 sides that must equal 24 ft

Therefore: 24 ÷ 2 = 12. The cage is 12 ft long

31. 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   Wall is: 32 ft x 10 ft = 320 sq ft

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

No, 2 quarts will not be enough

32. 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   bedroom = 17 ft + 12 ft + 17 ft + 12 ft = 58 ft

33. 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 x 36 x 2
   b.   27 x 36   d. 27 + 36

Area of rectangle = multiply 2 adjacent sides   Area = Length x Width

34. How many square inches will Monica need for her table?   Answering question #33 _____
     36 in x 27 in = area of table = 972 sq inches of one-inch tiles