Name _____

Customary Length Measurements Match

Convert each measurement. Write the letter of the correct measure.

1. 28 yd = **F** ft

2. 372 in. = **H** yd 1 ft

3. **J** yd = 18 ft

4. **B** in. = 28 ft 10 in.

5. 132 ft = **C** yd

6. 780 in. = **D** ft

7. **I** yd = 219 ft

8. **E** in. = 15 ft

9. 15,840 ft = **A** mi

10. 7 mi 200 yd = **G** yd

A. 3

B. 346

C. 44

D. 65

E. 180

F. 84

G. 12,520

H. 10

I. 73

J. 6

Customary Units of Length
1 foot (ft) = 12 inches (in.)
1 yard (yd) = 3 ft
1 mile (mi) = 5,280 ft
1 mi = 1,760 yd

11. **Stretch Your Thinking** Niko rides his bike 5,300 yards to his friend's house. About how many miles does Niko ride?

   1,760 yd = 1 mi

   5,300 yards is about **3** miles.

12. **Write Math** ▶ **Explain** how you found your answer for Exercise 11.

   Possible answer: I estimated. There are about 1,800 yards in 1 mile, 3,600 yards in 2 miles, and 5,400 yards in 3 miles.
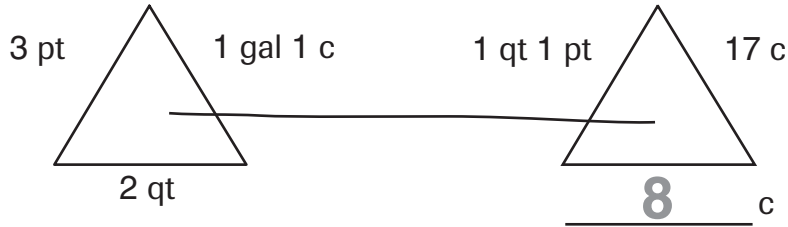
Name _____

Units of Capacity

Each triangle in the right column has two measurements that are equal to measurements given on a triangle in the left column. Match the triangles with equal measurements, and find the unknown measurement.

Example:

3 pt △ 1 gal 1 c   1 qt 1 pt △ 17 c
2 qt   **8** c

1.

6 c △ 10 fl oz   8 gal △ **1** gal **2** c
256 fl oz   16 qt

2.

128 c △ 4 qt 1 pt   1,024 c △ 1 qt 3 fl oz
4 gal   **48** fl oz

3.

6 qt 3 fl oz △ 72 fl oz   **195** fl oz △ $4\frac{1}{2}$ pt
22 c   1 gal 6 c

4.

64 gal △ 35 fl oz   10 pt △ 66 fl oz
3 pt   **20** c

5.

5 qt △ 8 c 2 fl oz   48 fl oz △ **1** c **2** oz
1 gal 1 qt   8 qt
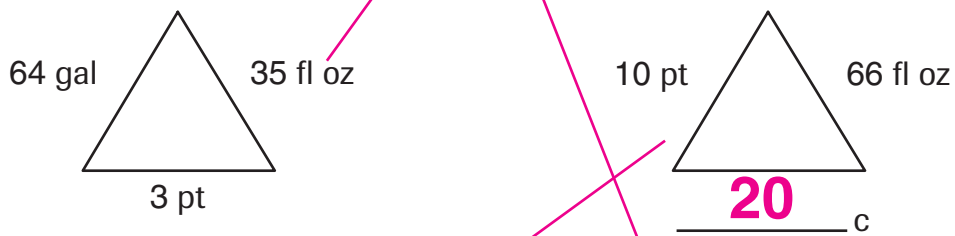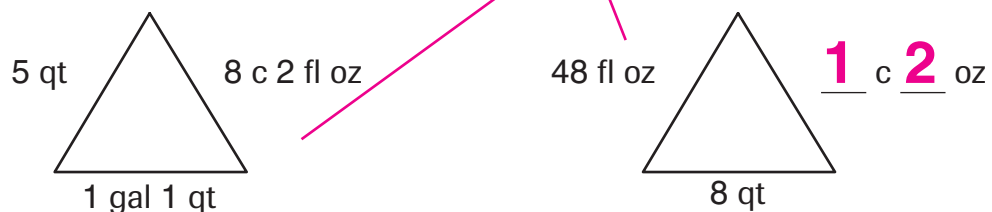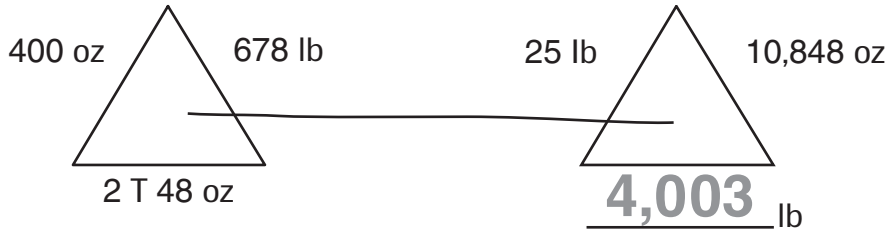
Units of Weight

Each triangle in the right column has two measurements that are equal to measurements given on a triangle in the left column. Match the triangles with equal measurements, and find the unknown measurement.

Customary Units of Weight
1 pound (lb) = 16 ounces (oz)
1 ton (T) = 2,000 lb

Example:

400 oz 678 lb   25 lb 10,848 oz

2 T 48 oz   **4,003** lb

1.

12 lb 1,031 oz   1 T 15 lb **4** lb **11** oz

19 oz   64,005 oz

2.

2,015 lb 75 oz   6,017 lb 7 lb 96 oz

2 T 5 oz   **149** oz

3.

560 oz 7 lb 6 oz   **35** lb 118 oz

932 lb   14,912 oz

4.

3 T 17 lb 13 lb   150 oz 94,000 lb

9 lb 5 oz   **32,464** oz

5.
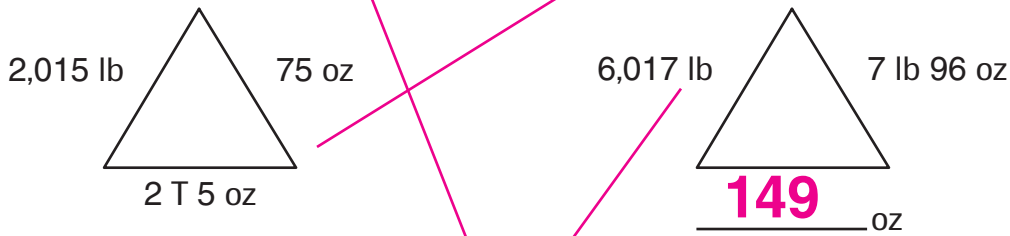
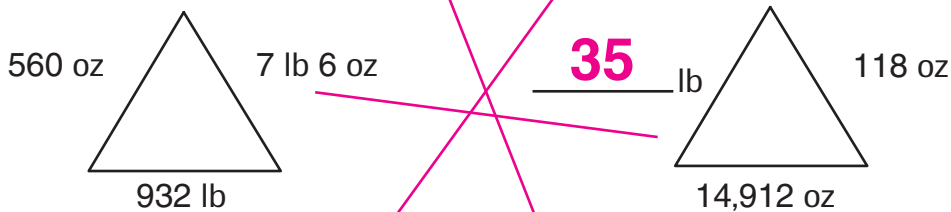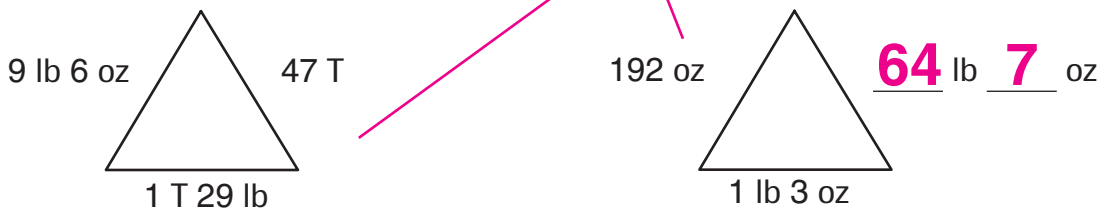9 lb 6 oz 47 T   192 oz **64** lb **7** oz

1 T 29 lb   1 lb 3 oz

Name _____

Adding and Subtracting Measures

Possible answers are given.

Write each sum or difference in two ways. The first answer is given.

1. 3 ft 9 in. + 7 ft 5 in.

11 ft 2 in.; 134 in.

2. $2\frac{1}{2}$ yd − $1\frac{3}{4}$ ft

69 in.; $5\frac{3}{4}$ ft

3. 9 mi 3,500 ft + 8 mi 1,990 ft

18 mi 210 ft; 18 mi 70 yd

4. 9 yd 1 ft 11 in. − 4 yd 2 ft 8 in.

4 yd 2 ft 3 in.; 14 ft 3 in.

5. 8 lb 12 oz + 3 lb 6 oz

12 lb 2 oz; 194 oz

6. 6 T 400 lb − 4 T 1,000 lb

1 T 1,400 lb; 3,400 lb

7. 12 gal 3 qt + 5 gal 2 qt

18 gal 1 qt; 73 qt

8. 8 pt 3 fl oz − 2 pt 9 fl oz

5 pt 10 fl oz; 90 fl oz

9. **Write Math** ▸ **Explain** how you found the difference in Exercise 4.

Possible explanation: I converted both lengths to inches. So, 9 yd 1 ft 11 in. = 347 in., and 4 yd 2 ft 8 in. = 176 in. Then I subtracted 347 in. − 176 in. = 171 in. To convert to feet, I divided 171 by 12, which gave me 14 ft 3 in.

To convert to yards, I divided 14 by 3, which gave me 4 yd 2 ft. I added the 3 in. to get 4 yd 2 ft 3 in.
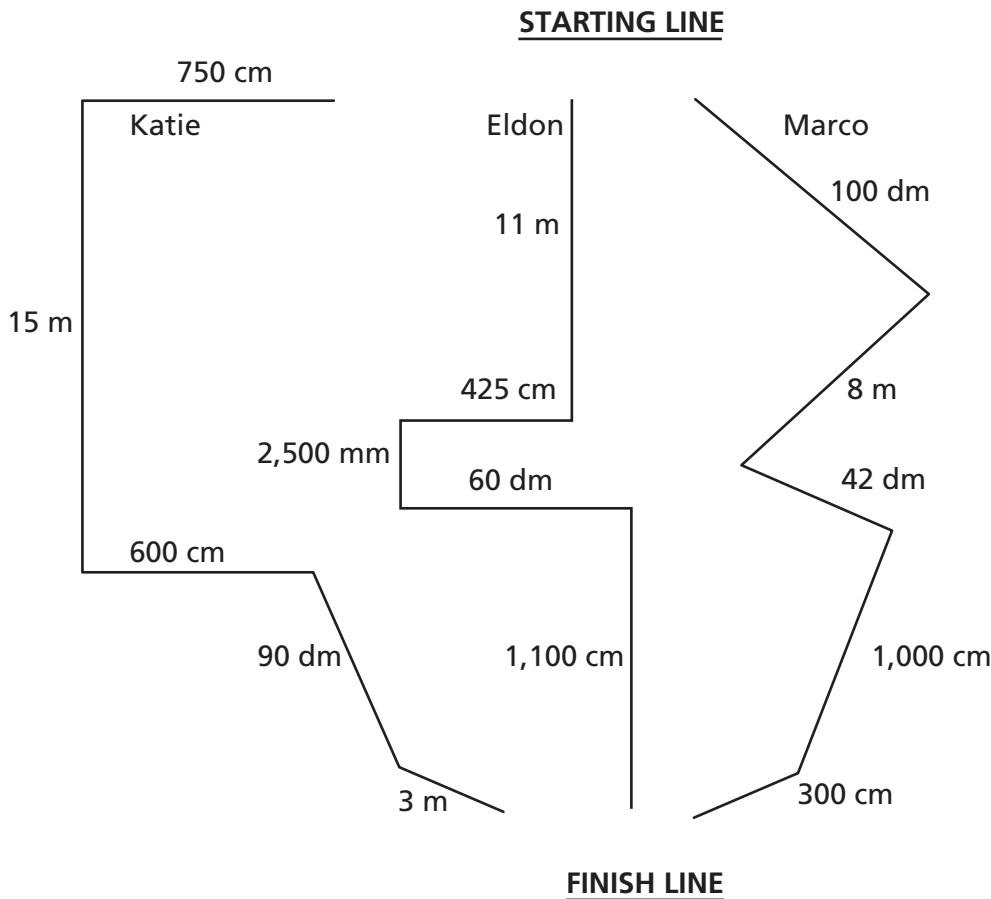
Metric Maze

Katie, Eldon, and Marco are taking different paths through the Metric Maze below. Follow each of their paths, and add to find the total distance each person travels. Then answer the questions below.

Metric Units of Length		
1 meter (m)	=	10 decimeters (dm)
1 dm	=	10 centimeters (cm)
1 cm	=	10 millimeters (mm)

STARTING LINE

750 cm

Katie   Eldon   Marco

11 m   100 dm

15 m

425 cm   8 m

2,500 mm   60 dm   42 dm

600 cm

90 dm   1,100 cm   1,000 cm

3 m   300 cm

FINISH LINE

1. Who has the shortest path to the Finish Line? _____ **Eldon**

2. Who has the longest path to the Finish Line? _____ **Katie**

3. **Write Math** ▶ **Explain** how you changed the units so that you could compare the lengths of the paths.

Possible explanation: I multiplied or divided to change all the units to centimeters. Then I found the sum of each path's measurements so that I could compare total lengths.

More Customary Units

The table below shows customary units of length and capacity that are sometimes used.

Units of Length	Units of Capacity
1 rod = 16.5 feet	1 fluid dram = $\frac{1}{8}$ fluid ounce
1 furlong = 40 rods	1 gill = 4 fluid ounces
1 mile = 8 furlongs	1 peck = 8 quarts
1 fathom = 6 feet	1 bushel = 4 pecks
1 league = 3 miles	1 tablespoon = $\frac{1}{2}$ fluid ounce
	1 teaspoon = $\frac{1}{3}$ tablespoon

Solve.

1. How many yards are in 1 rod? **5.5 yards**

2. How many feet are in 1 furlong? **660 feet**

3. How many furlongs are in 1,760 yards? **8 furlongs**

4. How many inches are in 1 fathom? **72 inches**

5. How many miles are in 20,000 leagues? **60,000 miles**

6. How many fluid drams are in 1 ounce? **8 fluid drams**

7. How many gills are in 1 pint? **4 gills**

8. How many pints are in 1 peck? **16 pints**

9. How many quarts are in 3 bushels? **96 quarts**

10. How many fluid drams are in 1 gill? **32 fluid drams**

11. How many teaspoons are in 1 tablespoon? **3 teaspoons**

12. How many tablespoons are in 1 gill? **8 tablespoons**

13. **Write Math** ▶ Explain how you solved Exercise 12.

Since 1 tablespoon = $\frac{1}{2}$ fluid ounce, 2 tablespoons = 1 fluid ounce. Since 1 gill = 4 fluid ounces, 4 fluid ounces equals 8 tablespoons.

What Time Is It?

Find the start, elapsed, or end time.

1. Start: 9:13 A.M.
   Elapsed time: $9\frac{3}{4}$ hr

   End time: **6:58 P.M.**

2. Start: 7:15 A.M.

   Elapsed time: **6 hr 7 min**
   End time: 1:22 P.M.

3. Start: 2:18:09 P.M.
   Elapsed time: 5 hr 34 min 27 sec

   End time: **7:52:36 P.M.**

4. Start: **4:36:18 P.M.**
   Elapsed time: 2 hr 27 min 53 sec
   End time: 7:04:11 P.M.

5. Start: April 4
   Elapsed time: 2 weeks 4 days

   End time: **April 22**

6. Start: June 1
   Elapsed time: **26 days, or 3 weeks 5 days**
   End time: June 27

7. **Stretch Your Thinking** Anne started working on her art project at 3:40 P.M. She worked for $1\frac{1}{2}$ hours. She took a 55 minute supper break. She claimed that if she worked 1 hour more, she could finish the project and meet her friends at the movies before 7:00 P.M. Is Anne correct? **Explain** how you know.

   No; Possible answer: I know that $1\frac{1}{2}$ hours is 1 hour 30 minutes. 3 hr 40 min + 1 hr 30 min = 4 hr 70 min, or 5 hr 10 min. So, she went to supper at 5:10 P.M. and finished at 6:05 P.M. One hour later than that is 7:05 P.M.

8. **Write Math** ▶ **Explain** how to find the elapsed time in Exercise 6.

   Possible answer: I know from June 1 to June 27 is 26 days. 26 ÷ 7 is 3 r5, so 26 days = 3 weeks and 5 days.