# 7A – Exercises – Chapter 5

Name <u>Answer Key</u>

Hour _____

## Lesson 5.1 Practice                                    *Ratios*

Write each ratio as a fraction.

1. 4 weeks to plan 2 events

$$\frac{4}{2} = \frac{2}{1}$$

2. 8 teaspoons to 12 forks

$$\frac{8}{12} = \frac{2}{3}$$

3. 9 children to 24 adults

$$\frac{9}{24} = \frac{3}{8}$$

4. 16 cups to 10 servings

$$\frac{16}{10} = \frac{8}{5}$$

## Lesson 5.2 Practice                                    *Unit Rates*

Express each rate as a unit rate. Round to the nearest tenth or nearest cent, if necessary.

5. $58 for 5 tickets

$11.60 for 1 ticket

6. $4.19 for 4 cans of soup

$1.05 for 1 can

7. 237 pages in 8 days

29.6 pages per day

8. 180 words in 5 minutes

36 words in 1 minute

9. $6.99 for 5 cans

$1.40 for 1 can

10. $102 over 12 hours

$8.50 per hour

11. At Funtimes Gym, eight 1-hour classes cost $96. At Fitness Place, twelve 1-hour classes cost $132. Which gym offers the best rate per hour?

Fitness Place, they cost $11 per hour.

## Lesson 5.3 Practice                                    *Complex Fractions*

Simplify.

12. $\frac{3}{\frac{1}{3}}$

9

13. $\frac{5}{\frac{3}{7}}$

$11\frac{2}{3}$

14. $\frac{\frac{4}{9}}{2}$

$\frac{2}{9}$

15. $\frac{\frac{7}{8}}{10}$

$\frac{7}{80}$

1

# 7A – Exercises – Chapter 5

16. $\dfrac{\frac{3}{5}}{\frac{9}{10}}$

$\boxed{\dfrac{2}{3}}$

17. $\dfrac{\frac{1}{6}}{\frac{5}{6}}$

$\boxed{\dfrac{1}{5}}$

18. $\dfrac{\frac{4}{5}}{\frac{9}{10}}$

$\boxed{\dfrac{8}{9}}$

19. $\dfrac{\frac{3}{5}}{\frac{3}{7}}$

$\boxed{1\frac{2}{5}}$

## Lesson 5.4 Practice
## *Converting Rates*

20. Jake was in a bicycle race. His average speed was 22 miles per hour. At this rate, how many feet per hour did Jake travel? (1 mile = 5,280 feet)

$$\dfrac{116,160\,ft}{1\,hr}$$

21. Giant pandas can spend up to 16 hours a day eating bamboo. How many minutes per day is this?

$$\dfrac{960\,min}{1\,day}$$

## Lesson 5.5 Practice
## *Proportional and Nonproportional Relationships*

Determine whether the set of numbers in each table is proportional. If the relationship is proportional find the constant of proportionality. Explain your reasoning.

22.

| Cookies | Cupcakes |
|---------|----------|
| 6 | 4 |
| 9 | 6 |
| 12 | 8 |
| 15 | 10 |

Proportional
cookie → cupcake: 1.5
cupcake → cookie: 0.6̄

23.

| Population (100,000) | Years |
|----------------------|-------|
| 1.3 | 1 |
| 2.1 | 2 |
| 3.3 | 3 |
| 5.2 | 4 |

Not proportional; the ratios are not the same.
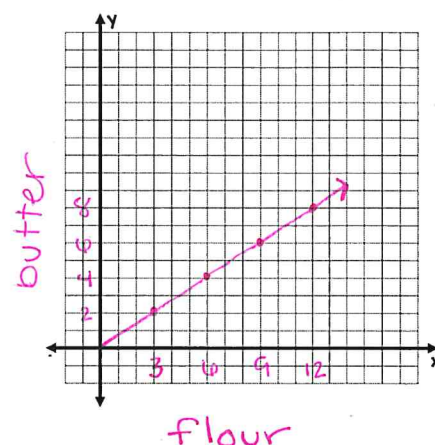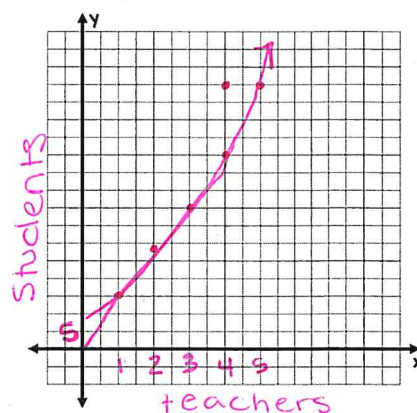
## Lesson 5.6 Practice

### Graph Proportional Relationships

Determine whether each relationship is proportional by graphing on the coordinate plane. Explain your reasoning.

24.

| Teachers | Students |
|----------|----------|
| 1 | 15 |
| 2 | 28 |
| 3 | 40 |
| 4 | 55 |
| 5 | 75 |

Not proportional, the line is not straight

25. A recipe for chocolate chip cookies uses 3 cups of flour and 2 sticks of butter. Is the amount of butter used proportional to the number of cups of flour used? Explain your reasoning.

Proportional, the line is straight and goes through the origin.

## Lesson 5.7 Practice

### Solve Proportions

Solve the proportion.

26. $\frac{x}{9} = \frac{16}{12}$

$x = 12$

27. $\frac{32}{28} = \frac{w}{7}$

$W = 8$

28. $\frac{5}{u} = \frac{60}{132}$

$U = 11$

29. $\frac{36}{21} = \frac{24}{s}$

$S = 14$

30. $\frac{22}{z} = \frac{121}{16.5}$

$Z = 3$

31. $\frac{d}{21} = \frac{1.5}{3.5}$

$d = 9$

## Lesson 5.8 Practice          *Scale Drawings and Models*

32. Joanna knows the distance to her grandmother's house is 21 miles. On a map, the distance is 5.25 inches. What is the scale of the map?

$$\frac{4 \text{ mi}}{1 \text{ in}}$$

33. Kevin drew a scale drawing of his living room. The actual room is 16 feet long. If the room is 12 inches long in the drawing, what is the scale of the drawing.
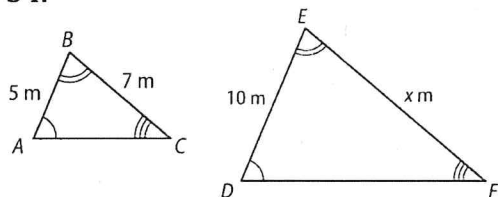
$$\frac{1.\overline{3} \text{ ft}}{1 \text{ in}}$$
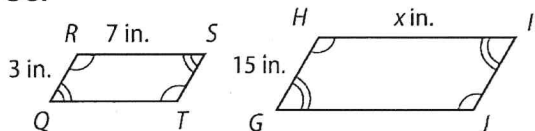
## Lesson 5.9 Practice                    *Similar Figures*
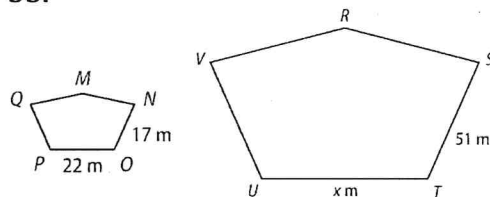
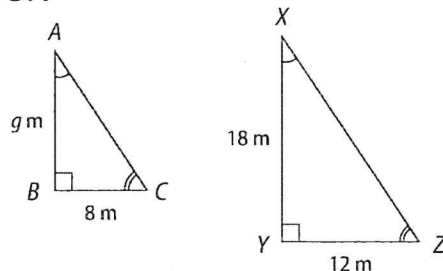The figures are similar. Find each missing measure.

**34.**

B
5 m     7 m
A          C

E
10 m     x m
D          F

$$x = 14 \text{ m}$$

**35.**

M
Q          N
        17 m
P  22 m  O

R
V          S
          51 m
U   x m   T

$$x = 66 \text{ m}$$

**36.**

R   7 in.   S
3 in.
Q          T

H     x in.     I
15 in.
G              J

$$x = 35 \text{ in}$$

**37.**

A
g m
B        C
   8 m

X
18 m
Y        Z
   12 m

$$g = 12 \text{ m}$$

4

## Lesson 5.8 Practice          *Scale Drawings and Models*

38. Lena's house casts a shadow that is 14 feet long at the same time that Lena casts a shadow that is 3.5 feet long. If Lena is 4.5 feet tall, how tall is her house?

18 feet

39. Suppose a rocket outside a science museum cast a shadow that was 176 feet. At the same time a 5.75-foot-tall person standing next to the rocket casts a shadow that is 9.2 feet long. How tall is the rocket?

110 feet