

SAT Ratios and Rates Worksheet

Name: _____ Date: _____

Circle one answer for each question. Use the blank space for calculations. A calculator is allowed.

- 1. The ratio of red beads to blue beads is 3:5. If there are 40 beads altogether, how many are red?**
 - A. 8
 - B. 15
 - C. 24
 - D. 25

- 2. A car travels 180 miles in 3 hours at a constant speed. What is its speed in miles per hour?**
 - A. 45
 - B. 60
 - C. 90
 - D. 540

- 3. A recipe uses 2 cups of flour for every 3 cups of oats. How much flour is needed for 12 cups of oats?**
 - A. 6 cups
 - B. 8 cups
 - C. 9 cups
 - D. 18 cups

4. A map uses 1 centimeter to represent 8 kilometers. How many kilometers does a 4.5-centimeter distance represent?
- A. 12.5
 - B. 32
 - C. 36
 - D. 45
5. A machine produces 150 parts in 6 minutes. At the same rate, how many parts does it produce in 10 minutes?
- A. 200
 - B. 225
 - C. 250
 - D. 300
6. How many inches are in 3.5 feet? Use 12 inches = 1 foot.
- A. 24
 - B. 36
 - C. 42
 - D. 45

7. A runner covers 400 meters in 80 seconds. What is the average speed in meters per second?
- A. 4
 - B. 5
 - C. 20
 - D. 320
8. If y is directly proportional to x and $y = 18$ when $x = 6$, what is y when $x = 10$?
- A. 22
 - B. 24
 - C. 30
 - D. 60
9. Paint covers 240 square feet per gallon. How many gallons are needed to cover 900 square feet at this rate?
- A. 3.25
 - B. 3.5
 - C. 3.75
 - D. 4.25

10. The ratio of teachers to students is 2:35. If there are 280 students, how many teachers are there?

- A. 8
- B. 16
- C. 20
- D. 35

11. A liquid has density 1.2 grams per milliliter. What is the mass of 250 milliliters?

- A. 208 grams
- B. 250 grams
- C. 300 grams
- D. 450 grams

12. A vehicle uses 4 gallons to travel 112 miles. At the same efficiency, how far can it travel on 7 gallons?

- A. 168 miles
- B. 180 miles
- C. 196 miles
- D. 224 miles

Answer key

1 B · 2 B · 3 B · 4 C · 5 C · 6 C · 7 B · 8 C · 9 C · 10 B · 11 C · 12 C

1. B: 15

There are $3 + 5 = 8$ equal parts. Each part contains $\frac{40}{8} = 5$ beads, so red beads total $3(5) = 15$.

2. B: 60

Rate equals distance divided by time. Dividing 180 miles by 3 hours gives 60 miles per hour.

3. B: 8 cups

The oats are multiplied by 4, from 3 to 12. Multiply the flour by the same factor: $2(4) = 8$ cups.

4. C: 36

Multiply the map distance by the scale: 4.5 centimeters times 8 kilometers per centimeter equals 36 kilometers.

5. C: 250

The rate is $\frac{150}{6} = 25$ parts per minute. In 10 minutes, the machine produces $25(10) = 250$ parts.

6. C: 42

Multiply 3.5 feet by 12 inches per foot. The feet cancel, leaving 42 inches.

7. B: 5

Divide distance by time: $\frac{400}{80} = 5$ meters per second. The requested unit is not seconds per meter.

8. C: 30

Direct proportion means $y = kx$. Here $k = \frac{18}{6} = 3$, so $y = 3(10) = 30$.

9. C: 3.75

Divide total area by coverage per gallon: $\frac{900}{240} = 3.75$ gallons. No requirement to buy whole containers is stated.

10. B: 16

The student count is 8 times 35. Multiply the teacher part by 8 as well: $2(8) = 16$.

11. C: 300 grams

Mass equals density times volume. Multiplying 1.2 grams per milliliter by 250 milliliters gives 300 grams.

12. C: 196 miles

The efficiency is $\frac{112}{4} = 28$ miles per gallon. Seven gallons provide $28(7) = 196$ miles.