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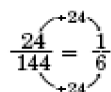
Chapter 6 - Ratio, Proportion, and Functions - Practice Test

Write each ratio as a fraction in simplest form.

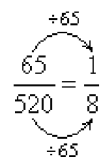
1. 12 red blocks out of 20 blocks

$$\frac{12}{20} = \frac{3}{5}$$


2. 24 potato chips out of 144 chips

$$\frac{24}{144} = \frac{1}{6}$$


3. 65 rotten apples out of 520 apples

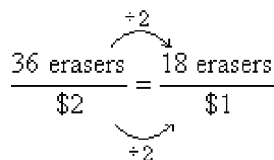
$$\frac{65}{520} = \frac{1}{8}$$


4. **WORD PROCESSING** The world record for the fastest typing speed is 212 words per minute. How many words per second is this? Round to the nearest tenth.

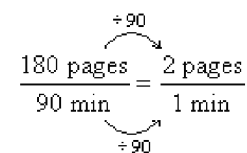
$$\frac{212 \text{ words}}{60 \text{ seconds}} = \frac{212}{60} = 3.5$$

or 3.5 words per second

5. \$2 for 36 erasers

$$\frac{36 \text{ erasers}}{\$2} = \frac{18 \text{ erasers}}{\$1}$$


6. 180 pages in 90 minutes

$$\frac{180 \text{ pages}}{90 \text{ min}} = \frac{2 \text{ pages}}{1 \text{ min}}$$


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7. **MULTIPLE CHOICE** Candace buys 12 cans of orange juice for \$6. At this rate, how much would she pay for 48 cans of orange juice?

A \$20
B \$22
C \$24
D \$30

Let p be the dollars that Candace pays for 48 cans.

$$\frac{\$6}{12 \text{ cans}} = \frac{p}{48 \text{ cans}}$$

Since $12 \times 4 = 48$, multiply the numerator and the denominator by 4.

$$\begin{aligned}\frac{\$6}{12 \text{ cans}} &= \frac{(\$6) \times 4}{(12 \text{ cans}) \times 4} \\ &= \frac{\$24}{48 \text{ cans}}\end{aligned}$$

$$p = \$24$$

The answer is C.

8. 32 pencils for \$8; 16 pencils for \$4

Find the unit rates.

$$\begin{aligned}\frac{32 \text{ pencils}}{\$8} &= \frac{(32 \text{ pencils}) \div 8}{(\$8) \div 8} \\ &= \frac{4 \text{ pencil}}{\$1}\end{aligned}$$

$$\begin{aligned}\frac{16 \text{ pencils}}{\$4} &= \frac{(16 \text{ pencils}) \div 4}{(\$4) \div 4} \\ &= \frac{4 \text{ pencil}}{\$1}\end{aligned}$$

The unit rates are the same. Therefore, the rates are proportional.

$$\frac{32 \text{ pencils}}{\$8} = \frac{16 \text{ pencils}}{\$4}$$

9. 72 out of 90 students have siblings;
362 out of 450 students have siblings

Write in simplest form.

$$\begin{aligned}\frac{72}{90} &= \frac{72 \div 18}{90 \div 18} \\ &= \frac{4}{5}\end{aligned}$$

$$\begin{aligned}\frac{362}{450} &= \frac{362 \div 2}{450 \div 2} \\ &= \frac{181}{225}\end{aligned}$$

The ratios in simplest form are not the same. Therefore, the rates are not proportional.

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10. 524 Calories for 4 servings;
786 Calories for 6 servings

Find the unit rates.

$$\begin{aligned}\frac{524 \text{ calories}}{4 \text{ servings}} &= \frac{(524 \text{ calories}) \div 4}{(4 \text{ servings}) \div 4} \\ &= \frac{131 \text{ calories}}{1 \text{ serving}}\end{aligned}$$

$$\begin{aligned}\frac{786 \text{ calories}}{6 \text{ servings}} &= \frac{(786 \text{ calories}) \div 6}{(6 \text{ servings}) \div 6} \\ &= \frac{131 \text{ calories}}{1 \text{ serving}}\end{aligned}$$

The unit rates are the same. Therefore, the rates are proportional.

$$\frac{524 \text{ calories}}{4 \text{ servings}} = \frac{786 \text{ calories}}{6 \text{ servings}}$$

11. $\frac{4}{6} = \frac{x}{12}$

Since $6 \times 2 = 12$, multiply the numerator and the denominator by 2.

$$\begin{aligned}\frac{4}{6} &= \frac{4 \times 2}{6 \times 2} \\ &= \frac{8}{12} \\ x &= 8\end{aligned}$$

12. $\frac{10}{p} = \frac{2}{8}$

Since $2 \times 5 = 10$, multiply the numerator and the denominator by 5.

$$\begin{aligned}\frac{2}{8} &= \frac{2 \times 5}{8 \times 5} \\ &= \frac{10}{40} \\ p &= 40\end{aligned}$$

13. $\frac{n}{13} = \frac{8}{52}$

Since $52 \div 4 = 13$, divide the numerator and the denominator by 4.

$$\begin{aligned}\frac{8}{52} &= \frac{8 \div 4}{52 \div 4} \\ &= \frac{2}{13} \\ n &= 2\end{aligned}$$

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14. $\frac{7}{13} = \frac{a}{52}$

Since $13 \times 4 = 52$, multiply the numerator and the denominator by 4.

$$\begin{aligned}\frac{7}{13} &= \frac{7 \times 4}{13 \times 4} \\ &= \frac{28}{52} \\ a &= 28\end{aligned}$$

15. **SEASONS** If 7 of the 28 students in a class prefer the winter months, predict how many would prefer the winter months in a school of 400 students.

Find the unit rate.

$$\begin{aligned}\frac{7}{28} &= \frac{7 \div 7}{28 \div 7} \\ &= \frac{1}{4}\end{aligned}$$

Let w be the number of students out of 400 who prefer the winter months.

$$\frac{1}{4} = \frac{w}{400}$$

Since $4 \times 100 = 400$, multiply the numerator and the denominator by 100.

$$\begin{aligned}\frac{1}{4} &= \frac{1 \times 100}{4 \times 100} \\ &= \frac{100}{400}\end{aligned}$$

$$w = 100$$

100 out of 400 students prefer the winter months.

16. **DISCOUNT** Ellie is using the following table to help her calculate the discount on baseball caps. Mr. Gomez would like to order 8 baseball caps. How much of a discount should Ellie give him?

Baseball Caps	1	2	3
Discount (\$)	2	3	4

The discount is the number of caps plus 1 dollar.

For 8 baseball caps, the discount will be

$(8 + 1)$ or \$9.

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17. **MULTIPLE CHOICE** Which expression was used to create the table?

Position, x	Value of Term
3	11
4	14
5	17
6	20
7	23
x	■

- F** $x + 8$
G $2x + 3$
H $x - 8$
J $3x + 2$

The value of a term is three times the position value x plus 2 or $3x + 2$.
The answer is J.

18. Make a table to show the relationship between the number of h hours Darnell spends reading in d days.

Days, d	Multiply by 2	Hours, h
1	1×2	2
2	2×2	4
3	3×2	6
4	4×2	8

19. Write an equation to find h , the number of hours Darnell spends reading in d days.

The number of hours, h , is two times the number of days, d .
 $h = 2d$

20. On average, how many hours will Darnell spend reading in 12 days?

$h = 2d$
Substitute 12 for d .
 $h = 2(12)$ or 24
Darnell will spend 24 hours reading in 12 days.