

Answer the following questions on a separate sheet of paper and turn in with all work shown to get full credit.

1) What is the difference between a rate and a unit rate?

BOTH COMPARE QUANTITIES IN DIFFERENT UNITS, BUT A UNIT RATE HAS ONE QUANTITY OF 1

2) Is $\frac{12}{18} = \frac{5}{8}$ a proportion? Why or why not? How do you know?

NO

$$\frac{2}{3} \cdot \frac{6}{6} = \frac{12}{18} = \frac{5}{8}$$

$$\frac{12}{18} = \frac{5}{8} \quad \frac{4}{90} \times \frac{5}{5} = \frac{20}{45}$$

3) Fill in the missing values in the ratio table:

5	15	45	100
3	9	27	60

4) 19 is 20% of what number?

$$\frac{19}{W} = \frac{20}{100} \quad \frac{19 \times 5}{W} = \frac{20 \times 5}{100} \quad \frac{95}{W} = \frac{100}{20} \quad W = 95$$

$$\frac{19}{W} = \frac{20}{100} \quad \frac{19 \times 5}{W} = \frac{20 \times 5}{100} \quad \frac{95}{W} = \frac{100}{20} \quad \frac{4}{95} \times \frac{19}{19} = \frac{76}{1805}$$

5) Find 30% of 400

120

$$\frac{30}{100} \times 400 = \frac{12000}{100} = 120$$

6) Determine the missing value:

$$\frac{28}{x} = \frac{x}{9} \quad x^2 = 252 \quad x = 15$$

7) Write the rate as a unit rate (including units): \$31.50 for 9 tickets

\$3.50/ticket

$$\frac{\$31.50}{9} = \frac{\$3.50}{1} \quad \begin{array}{r} 3.50 \\ 1 \overline{) 31.50} \\ \underline{27} \\ 45 \\ \underline{45} \\ 0 \end{array}$$

8) Maren drove 245 miles in 3.5 hours. Donika drove 427 miles in 7 hours.

MAREN 70 mph

DONIKA 61 mph

8a) Who drove at the fastest rate of speed? MAREN

8b) Justify your answer: she drove more miles in same time.

9) Ephraim the Snake is 3 feet long. Asia the Fish is 49 inches long.

How much longer is Asia than Ephraim?

13 inches longer

$$\frac{3 \text{ ft}}{36 \text{ in}} = \frac{1 \text{ ft}}{12 \text{ in}} \quad \frac{36}{36} = \frac{12}{12} \quad \frac{36}{36} = \frac{12}{12}$$

10) The table below shows the number of tickets sold for each movie.

What does the ratio 5:3 represent? **NONE**

Item	Avengers	Thor	Captain America	Spider Man
Quantity Sold	12	15	30	10

$$35 \overline{) 2450} \quad \begin{array}{r} 70 \\ \underline{2450} \\ 00 \\ \underline{00} \\ 0 \end{array}$$

$$\frac{3}{3} = \frac{5}{5} \quad \frac{3}{3} = \frac{5}{5}$$

$$7 \overline{) 427} \quad \begin{array}{r} 61 \\ \underline{42} \\ 07 \\ \underline{07} \\ 0 \end{array}$$

$$\frac{5}{3}$$

$$\frac{15}{12} = \frac{5}{4} \quad \frac{15}{10} = \frac{3}{2} \quad \frac{30}{12} = \frac{5}{2}$$

11) The table below shows the cost for varying numbers of meals at a local restaurant. If the ratio stays the same, determine the value of n.

Number of Meals	Cost
3	\$36
5	\$60
12	\$144
20	n

12) The ratio of red to blue socks in a drawer is 8:12. If there are 80 socks in the drawer, how many are blue? $\frac{R}{B} = \frac{8}{12}$ $T=20$ $\frac{B}{T} = \frac{12}{20} \times 4 = \frac{48}{80}$ **48 BLUE SOCKS**

13) There are 80 people eating in a Chinese restaurant. If 25% of these people did NOT order an eggroll, how many people did order an eggroll? $\frac{60}{80} = \frac{75}{100}$ **60 people**

14) David deposited \$312 in the bank last week. If this was 20% of his paycheck, how much was his paycheck? $\frac{312}{W} = \frac{20}{100} \times \frac{1}{5}$ $\times \frac{312}{1560}$ **\$1560**

15) Mrs. Katz is saving for a beach vacation. She needs to save \$3,500. If she has only saved 30% of that amount, how much has she saved? $\frac{1050}{3500} = \frac{30}{100} \times \frac{3}{10}$ **\$1050**

16) The prices of 3 different bottles of salad dressing are given in the table. Which size bottle is the BEST value, according to the price per ounce?

Size	Price
20 ounces	\$4.20
15 ounces	\$2.25
5 ounces	\$0.90

$20 \overline{) 4.20} \rightarrow .21$ $15 \overline{) 2.25} \rightarrow .15$ $5 \overline{) .90} \rightarrow .22$

17) The weight of a rhinoceros is 8 kg. If there are 1000 grams in a kilogram, how many grams does the rhinoceros weigh? $\frac{g}{kg} = \frac{9}{8} = \frac{9 \times 1000}{8 \times 1}$ **8000 g**

18) Sixty liters of fruit punch were served at a party. If there are 1000 liters in a kiloliter, how many kiloliters were served? $\frac{L}{kL} = \frac{60}{1000} = \frac{60 \div 1000}{1000 \div 1000}$ **.06 kL**

19) If you spend \$30 on dinner out and want to leave a 20% tip for good service, what would your total bill be? $100\% = 30$ $10\% = 3$ $10\% + 10\% = 20\%$ $3 + 3 = \$6$ **\$30 + \$6 = \$36**

20) If a store sells a shirt for \$16 and you have a 20% off coupon, how much would you pay for the shirt before taxes? $\frac{P}{16} = \frac{80}{100} \times \frac{4}{5}$ $4 \cdot 16 = \frac{64}{5}$ **\$12.80**

21) How much would you pay for the shirt in question #20 including 6% sales tax?

$\begin{array}{r} 14 \\ \$12.80 \\ \times .06 \\ \hline .7680 \\ .77 \end{array}$

$\begin{array}{r} 1 \\ 12.80 \\ + .77 \\ \hline \$13.57 \end{array}$

0.6

$\begin{array}{r} 14 \\ 12.80 \\ \times 1.06 \\ \hline 7680 \\ 12800 \\ \hline 135680 \\ 106\% \end{array}$ **\$13.57**