

KEY

Proportion Word Problems

1. Carol spends 17 hours in a 2-week period practicing her culinary skills. How many hours does she practice in 5 weeks?

$\frac{17\text{hr}}{2\text{week}} = \frac{x}{5}$ $85 = 2x = \boxed{x = 42.5\text{hours}}$

2. In the typing world, 80 words per minute is considered acceptable. How many words per 30 minutes is this?

$\frac{80\text{words}}{1\text{min}} = \frac{x}{30}$ $\boxed{x = 2400\text{ words per min}}$

3. In the year 2000, there were 8.7 deaths per 1000 residents in the United States. If there were 281,421,906 residents in the U.S. during 2000, how many people died that year?

$\frac{8.7}{1000} = \frac{x}{281,421,906}$ $244,837.0582 = \frac{1000x}{1000}$ $\boxed{x = 244,837.06}$

4. In a shipment of 400 parts, 14 are found to be defective. How many defective parts should be expected in a shipment of 1000?

$\frac{14\text{defective}}{400\text{parts}} = \frac{x}{1000}$ $\frac{14000 = 400x}{4000 \quad 400}$ $\boxed{x = 35}$

5. Joseph drives 125 miles in 2 1/2 hours. At the same rate, how far will he be able to travel in 6 hours?

$\frac{125\text{mi}}{2.5} = \frac{x}{6}$ $750 = 2.5x$ $\boxed{x = 300}$

6. A piece of cable 8.5 cm long weighs 52 grams. What will a 10-cm length of the same cable weigh?

$\frac{8.5\text{cm}}{52\text{g}} = \frac{10}{x}$ $8.5x = 520$ $\boxed{x = 61.2}$

7. A rainstorm produced a rainfall of 2 inches per hour. How many hours would it take to get a rainfall amount of one foot?

$\frac{2\text{in}}{1\text{hr}} = \frac{12}{x} = \frac{2x}{2} = \frac{12}{2}$ $\boxed{x = 6}$

8. A snowstorm dumped 18 inches of snow in a 12-hour period. How many inches were falling per hour?

$\frac{18\text{in}}{12\text{hr}} = \frac{x}{1}$ $18 = 12x$ $\boxed{x = 1.5}$

9. Mary can read 22 pages in 30 minutes. How long would it take her to read a 100 page book? Write your answer in hours and minutes and round to the nearest minute, if needed.

$\frac{22}{30} = \frac{100}{x}$ $22x = 3000$ $x = 136.36 = 136\text{min} = \boxed{2\text{hrs } 16\text{min}}$

10. It takes about me 25 minutes to make out a test for a mathematics class. How long will it take to make out tests for all five of my classes?

$\frac{25}{1} = \frac{x}{5}$ $\boxed{125 = x}$

11. The chance of a woman getting breast cancer in her lifetime is 1 out of 8. At this rate, how many women in a classroom of 32 women would be expected to come down with breast cancer in her lifetime?

$\frac{1}{8} = \frac{x}{32}$ $32 = 8x = \boxed{x = 4}$

12. If 15.9 out of every 100 pregnant women in Georgia deliver their babies by C-Section, how many pregnant women out of 25,250 would be expected to deliver by C-Section?

$\frac{15.9}{100} = \frac{x}{25250}$ $401475 = 100x = \boxed{x = 4014.75}$

13. A company's quality control department found an average of 5 defective models for every 1000 models that were checked. If the company produced 60,000 models in a year, how many of them would be expected to be defective?

$\frac{5}{1000} = \frac{x}{60000}$ $300000 = 1000x$ $\boxed{x = 300}$

14. To determine the number of deer in a forest, a forest ranger tags 280 and releases them back into the forest. Later, 405 deer are caught, out of which 45 of them are tagged. Estimate how many deer are in the forest.

$\frac{405}{45} = \frac{x}{280} = 113400 = 45x$ $\boxed{x = 2520}$

15. An employee working at an electronics store earned \$3582 for working 3 months during the summer. What did the employee earn for the first two months?

$\frac{3582}{3} = \frac{x}{2}$ $7164 = \frac{3x}{3}$ $\boxed{x = 2388}$

16. A worker can complete the assembly of 15 tape players in 6 hours. At this rate, how many can the worker complete in a 40-hour work week?

$\frac{15}{6} = \frac{x}{40}$ $\frac{600}{6} = \frac{6x}{6}$ $\boxed{x = 100}$

17. The ratio of men to women at a class is 6 to 5. How many women students are there if there are 3600 men?

$$\frac{6}{5} = \frac{3600}{x} \quad 6x = 18000 \quad \boxed{x = 3000}$$

18. If 3 pounds of apples costs \$0.90, how much will 10 pounds cost?

$$\frac{3}{0.90} = \frac{10}{x} \quad 3x = 9 \quad \boxed{x = 3}$$

19. You find that your watch gains 2 minutes in 6 hours. How much will it gain in 3 days?

$$\frac{2}{6} = \frac{x}{72} \quad 144 = 6x \quad \boxed{x = 24} \quad 3 \text{ days} = 72 \text{ hrs.}$$

20. Sirloin steak costs \$2.99 per pound. How much will 3.4 pounds cost?

$$\frac{2.99}{1} = \frac{x}{3.4} \quad \boxed{x = 10.17}$$

21. A yard of fabric costs \$12.99. How much will 2 feet cost?

$$3 \text{ ft} = 1 \text{ yd} \quad \frac{12.99}{1} = \frac{x}{2} \quad \boxed{x = 77.94}$$

22. Hurricane Katrina dropped about 14 inches of rain over a 48 hour period. How much rain is this per hour? (Round your answer to the nearest tenth.)

$$\frac{14}{48} = \frac{x}{1} \quad 14 = 48x \quad \boxed{x = 0.3}$$

23. It takes about 20 minutes to grade a student's paper. How long, in hours, does it take to grade papers for a class of 25 people?

$$\frac{20}{1} = \frac{x}{25} \quad 500 = x \quad \boxed{x = 8 \text{ hours } 20 \text{ min}}$$

24. A doctor sees each of her patients for 25 minutes during a typical appointment. How many patients can she see in a typical $7\frac{1}{2}$ hour day?

$$450 \text{ min} \quad \frac{25 \text{ min}}{1 \text{ patient}} = \frac{450 \text{ min}}{x} \quad \frac{25x = 450}{25} \quad \boxed{x = 18}$$

25. If a trip between work and home takes 15 minutes each way, how much time will be spent in a 5-day work week traveling back and forth to work? (Assume that at no point does the employee have to go home and come back within the same day.)

$$15 \times 2 = 30 \text{ min traveled each day}$$

$$\frac{30 \text{ min}}{1 \text{ day}} = \frac{x}{5 \text{ days}} = 150 = x$$

$$\boxed{x = 150 \text{ min}}$$