

Write the following as an algebraic expression

1. three-fifths the sum of 6 and a number

$$\frac{3}{5}(x+6)$$

3. the difference of twice a number and four

$$2x-4$$

problems

2. seven less than a number

$$x-7$$

Write the following algebraic expressions in words.

4. $3x-6$ triple a number
minus six

5. $x+5$ a number
increased by 5

6. Six years ago, Jaime bought an antique table for \$2000 that increased in value by 4% annually. The equation $A = P(1+r)^t$ represents the value of the table given the original cost P , a rate of increase of r , expressed as a decimal, and time t , in years. What is the current value of the table?

$$\begin{aligned} A &= x \\ P &= 2000 \\ r &= 4\% = .04 \\ t &= 6 \end{aligned}$$

$$\begin{aligned} A &= P(1+r)^t \\ x &= 2000(1+.04)^6 \\ x &= \boxed{\$2530.64} \end{aligned}$$

7. If you drive 450 miles and you average 18 miles per gallon, how much do you spend on gasoline if it costs \$3.69 per gallon?

$$\frac{450}{18} = 25(3.69) = \boxed{\$92.25}$$

- 1 mile (mi) = 5280 feet (ft)
- 1 yard (yd) = 3 feet (ft)
- 1 foot (ft) = 12 inches (in)
- 1 centimeter (cm) = 10 millimeters (mm)
- 2 cups (c) = 1 pint (pt)
- 1 inch (in) = 2.54 centimeters (cm)

- 1 pound (lb) = 454 grams (g)
- 1 kilogram (kg) = 2.2 pounds (lb)
- 1 gallon (gal) = 4 quarts (qt)
- 1 quart (qt) = 946 milliliters (mL)

KHDB dcm

8. Convert 4kg to cg.

$$400000 \text{ cg}$$

9. Convert 36 cm per second to miles per hour.

$$\frac{60 \text{ min}}{1 \text{ hr}} \cdot \frac{60 \text{ s}}{1 \text{ min}} \cdot \frac{36 \text{ cm}}{1 \text{ sec}} \cdot \frac{1 \text{ in}}{2.54 \text{ cm}} \cdot \frac{1 \text{ ft}}{12 \text{ in}} \cdot \frac{1 \text{ mi}}{5280 \text{ ft}} = \boxed{.805 \text{ mph}}$$

10. Convert 450000 mm to km

$$.45 \text{ km}$$

11. An elevator takes 95 seconds to travel to the top of a tower that is 970 feet high. Find the speed of the elevator in miles per hour.

$$\frac{60 \text{ min}}{1 \text{ hr}} \cdot \frac{60 \text{ s}}{1 \text{ m}} \cdot \frac{970 \text{ ft}}{95 \text{ sec}} \cdot \frac{1 \text{ mi}}{5280 \text{ ft}} = \boxed{6.96 \text{ mph}}$$

12. Solve for z: $2x - z = 10 - 2x$

$$\begin{array}{r} -2x \\ 2x - z = 10 - 2x \\ \hline -z = 10 - 2x \end{array}$$

$$\boxed{z = -10 + 2x}$$

14. Solve for y:

$$\begin{array}{r} 3x = y + 2 \\ -2 \\ \hline 3x = y + 2 \end{array}$$

$$\boxed{y = 3x - 2}$$

13. $\frac{A}{2} = \frac{2(l+w)}{2}$ solve for l

$$\frac{A}{2} = l + w$$

$$\boxed{l = \frac{A}{2} - w}$$

15. Solve for F: $C = \frac{5}{9}(F - 32)$

$$\frac{9}{5} \cdot C = \frac{5}{9} (F - 32) \cdot \frac{9}{5}$$

$$\frac{9}{5} C + 32 = F - 32 + 32$$

$$\boxed{F = \frac{9}{5} C + 32}$$

16. What is a good unit to measure the area of a room in a house?

- A. Square feet
- B. Square miles
- C. Square inches
- D. Square millimeters

17. Which unit is the most appropriate for measuring the amount of water you drink in a day?

- A. Kiloliters
- B. Liters
- C. Megaliters
- D. Milliliters

18. You are taking a course that has five tests. To get a B in the course you must have an 80% on the five tests. Your scores on the first four tests were 66, 90, 71, and 85. What must you score on the 5th test to get a B for the course? Is it possible to get an A?

$$\begin{aligned}T_1 &= 66 \\T_2 &= 90 \\T_3 &= 71 \\T_4 &= 85 \\T_5 &= X \\A &= 80\end{aligned}$$

$$\text{Average} = \frac{T_1 + T_2 + T_3 + T_4 + T_5}{5}$$

$$80 = \frac{66 + 90 + 71 + 85 + X}{5}$$

$$5 \cdot 80 = \frac{312 + X}{5} \cdot 5$$

$$400 = 312 + X$$

$$\boxed{88 = X}$$

Try for an A:

$$5 \cdot 90 = \frac{312 + X}{5} \cdot 5$$

$$450 = 312 + X$$

$$\boxed{138 = X}$$

SO, No not possible for an A.