<u>Using Proportion For Unit Conversion Practice</u>

Use the following information to answer the first question.

Statement 1	4000 m = 40 km
Statement 2	3.5 yds = 10.5 ft
Statement 3	208 oz = 12 lbs
Statement 4	0.25 cm = 25 mm

1. The correct statement is

    A) 1   B) 2   C) 3   D) 4

2. Given the fact that 1 gallon = 8 pints, when converting 15.8 gallons to pints, the correct proportion and the correct answer is

    A) $\dfrac{1}{8} = \dfrac{x}{15.8}$ **and**   x = 1.975 pints

    B) $\dfrac{1}{8} = \dfrac{x}{15.8}$ **and**   x = 126.4 pints

    C) $\dfrac{1}{8} = \dfrac{15.8}{x}$ **and**   x = 1.975 pints

    D) $\dfrac{1}{8} = \dfrac{15.8}{x}$ **and**   x = 126.4 pints

3. Since 1 foot is equal to approximately 30 cm, the number of feet in 570 cm, to the nearest integer is _____.

4. Since 1 mile is equal to approximately equal to 1.6 km, the number of miles in 1.2 km can be written in the form 0.km, where k and m are integers. The values of k and m respectively are _____ and _____.

Use the following information to answer the next question.

Kevin was given a unit conversion problem and set up the following proportion:
$$\frac{2.5}{2500} = \frac{x}{328}$$

5. Which of the following scenarios below represents this proportion?
   A) One kilogram is equal to 1000 grams. Find the number of kilograms in 328 grams.
   B) One kilogram is equal to 1000 grams. Find the number of grams in 328 kilograms.
   C) Two kilograms is equal to 500 grams. Find the number of kilograms in 328 grams.
   D) Two kilograms is equal to 500 grams. Find the number of grams in 328 kilograms.

6. The number of inches in 55 yards is
   A) 198   B) 1980   C) 240   D) 2440

7. If it costs $43.40 to fill a 35 litre tank, then the cost to fill a 52 litre tank, to the nearest cent, is _____.

8. Convert 0.0098 litres to cm^3. Show the proportion used and all work.

<u>Using Proportion For Unit Conversion Practice</u>Solutions

Use the following information to answer the first question.

Statement 1	4000 m = 40 km
Statement 2	3.5 yds = 10.5 ft
Statement 3	208 oz = 12 lbs
Statement 4	0.25m = 25 mm

1. The correct statement is

A) 1 B) 2 C) 3 D) 4

Solution

<u>Statement 1</u>

$$\frac{1000\ m}{1\ km} = \frac{4000\ m}{4\ km}$$

Since there are 4 km in 4000 m, statement 1 is false.

<u>Statement 2</u>

$$\frac{1\ yd}{3\ ft} = \frac{3.5\ yds}{10.5\ ft}$$

Since there are 10.5 ft in 3.5 yds, statement 2 is true.

<u>Statement 3</u>

$$\frac{1\ lb}{16\ oz} = \frac{12\ lbs}{192\ oz}$$

Since there are 192 oz in 12 lbs, statement 3 is false.

<u>Statement 4</u>

$$\frac{1\ m}{1000\ mm} = \frac{0.25\ m}{250\ mm}$$

Since there are 250 mm in 0.25 m, statement 4 is false.

The correct answer is B.

2. Given the fact that 1 gallon = 8 pints, when converting 15.8 gallons to pints, the correct proportion and the correct answer is

A) $\dfrac{1}{8} = \dfrac{x}{15.8}$ **and**   x = 1.975 pints

B) $\dfrac{1}{8} = \dfrac{x}{15.8}$ **and**   x = 126.4 pints

C) $\dfrac{1}{8} = \dfrac{15.8}{x}$ **and**   x = 1.975 pints

D) $\dfrac{1}{8} = \dfrac{15.8}{x}$ **and**   x = 126.4 pints

Solution

$$\frac{1\ gallon}{8\ pints} = \frac{15.8\ gallons}{x}$$

Cross multiply.

(1)(x) = (8)(15.8)

x = 126.4

There are 126.4 pints in 15.8 gallons.

The correct answer is D.

3. Since 1 foot is equal to approximately 30 cm, the number of feet in 570 cm, to the nearest integer is _____.

Solution

$$\frac{1\ ft}{30\ cm} = \frac{x}{570\ cm}$$

Cross multiply.

(1)(570) = (30)(x)

Divide both sides of the equal sign by 30.

19 = x

Since 1 foot is equal to approximately 30 cm, the number of feet in 570 cm, to the nearest integer is 19.

4. Since 1 mile is equal to approximately equal to 1.6 km, the number of miles in 1.2 km can be written in the form 0.km, where k and m are integers. The values of k and m respectively are _____ and _____.

Solution

$$\frac{1\ mi}{1.6\ km} = \frac{x}{1.2\ km}$$

Cross multiply.

(1)(1.2) = (x)(1.6)

Divide both sides of the equal sign by 1.6.

0.75 = x

The values of k and m respectively are 7 and 5.

Use the following information to answer the next question.

Kevin was given a unit conversion problem and set up the following proportion:
$$\frac{2.5}{2500} = \frac{x}{328}$$

5. Which of the following scenarios below represents this proportion?
   A) One kilogram is equal to 1000 grams. Find the number of kilograms in 328 grams.
   B) One kilogram is equal to 1000 grams. Find the number of grams in 328 kilograms.
   C) Two kilograms is equal to 500 grams. Find the number of kilograms in 328 grams.
   D) Two kilograms is equal to 500 grams. Find the number of grams in 328 kilograms.

$$\frac{2.5}{2500} = \frac{1}{1000}$$

We can now read this proportion as 1 kg is equal to 1000 gm.

Rewriting the original:

$$\frac{1}{1000} = \frac{x}{328}$$

We are trying to find the number of kg in 328 gm.

The correct answer is A.

6. The number of inches in 55 yards is
A) 198　　　　　　B) 1980　　　　　　C) 240　　　　　　D) 2440

Solution

First convert yards to feet.

$$\frac{1\ yd}{3\ ft} = \frac{55\ yds}{x\ ft}$$

(1)(x) = (3)(55)

x = 165

In 55 yards, there are 165 feet.

Now convert feet to inches.

$$\frac{1\ ft}{12\ in} = \frac{165\ ft}{x\ in}$$

(1)(x) = (12)(165)

x = 1980

There are 1980 inches in 55 yards.

The correct answer is B.

7. If it costs $43.40 to fill a 35 litre tank, then the cost to fill a 52 litre tank, to the nearest cent, is _____.

Solution

Set up a proportion.

$$\frac{43.40}{35} = \frac{x}{52}$$

(43.4)(52) = (35)(x)

2256.8 = 35x

Divide both sides by 35.

64.48 = x

The cost to fill a 52 litre tank is $64.48.

8. Convert 0.0098 litres to cm^3. Show the proportion used and all work.

Solution

1 litre = 1000 cm^3

$$\frac{1\ litre}{1000\ cm^3} = \frac{0.0098\ litres}{x\ cm^3}$$

(1)(x) = (1000)(0.0098)

x = 9.8

There are 9.8 cm^3 in 0.0098 litres.