

1) In a school of 320 students, 85 students are in the band, 200 students are on sports teams, and 60 students participate in both activities. How many students are involved in either band or sports? ANS: 225

2) A veterinarian surveys 26 of his patrons. He discovers that 14 have dogs, 10 have cats, and 5 have fish. Four have dogs and cats, 3 have dogs and fish, and one has a cat and fish. If no one has all three kinds of pets, how many patrons have none of these pets? ANS: 5

3) A guidance counselor is planning schedules for 30 students. Sixteen students say they want to take French, 16 want to take Spanish, and 11 want to take Latin. Five say they want to take both French and Latin, and of these, 3 wanted to take Spanish as well. Five want only Latin, and 8 want only Spanish. How many students want French only? ANS: 7

4) Convert the following:

a. 8 km = ? cm ANS: 1 m=100 cm; 1Km = 1000 m so 8Km= 8 * 1000m= 8*1000*100cm= 800000cm

b. 5 meters = ? feet ANS: 1 m=3.28 ft so 5 m= 5*3.28 ft = 16.4 ft

c. 25°C = ? °F ANS: °F= °C*1.8 +32 so 25°C = (1.8*25 + 32)°F = 77°F

5) Let's calculate the average density of our planet. The mass of the Earth can be estimated quite accurately from the way objects are attracted to it by gravity. I'll spare you the computations, but we will use a figure for the mass of the Earth of 5.98×10^{27} g. The radius of the Earth is approximately 6370 km.

a. What is the radius of the Earth in centimeters?: _____ cm
(Hint: Convert 6370 km to ? cm. Convert to scientific notation, to eliminate those pesky zeroes.)

ANS: 6.37×10^8 cm

b. What is the volume of the Earth, in cubic centimeters? (You can use the value of 6370 km for the radius of the Earth, but remember to convert that value to cm in order to calculate the volume of the Earth in cm^3 .) We're assuming here that Earth is a perfect sphere. The volume of a sphere is:

Volume of a sphere = $(4/3) \pi r^3$
(where r = radius, and π = ratio of circumference to diameter of a sphere and $\pi \approx 3.1415927$)

The volume of Earth is: _____ cm^3

ANS: 1.08×10^{27} cm^3

c. Now let's calculate the average density of our planet, in grams per cubic centimeter (g/cm^3). The density of a substance is how "heavy" the material is - that is, how much a specified volume of the material would weigh. Mathematically, the equation is:

$$\text{Density} = \text{Mass}/\text{Volume}$$

(Remember, you were given the mass in grams, and the volume in cm^3 in part b.)

The average density of Earth is: _____ g/cm^3

ANS: 5.9 g/cm^3

6) One pair of jeans costs \$80.00, and is being discounted by 45%. Another pair costs \$55.00 and is being discounted by 15%. After the discount, which pair of jeans costs less?

$$\begin{aligned} \text{ANS: } & - \$80.00 - (45\% * \$80.00) = \$44 \\ & - \$55.00 - (15\% * \$55.00) = \$46.75 \end{aligned}$$

7) Of the total land in Utah, approximately 25% is arable land;

-Of the arable land, one-fifth is developed with houses;

-Of the remaining arable land, 50% is open space;

-The rest of the arable land is farmland.

Given the above information, determine how much of the total land in Utah is farmland.

ANS: 10%

8) In the math department, there are 60 graduate students and 200 undergraduate students. Assuming there are no other students besides graduates and undergraduates, what percentage of math students are graduate students? Which is the relative difference between graduates and undergraduates?

$$\text{ANS: Percentage: } 60/260 = 0.23 = 23\%$$

$$\text{Absolute difference} = 140 \text{ students}$$

$$\text{Relative difference} = 140/200 = 0.7 = 70\%$$

9) The price of a pound of carrots is \$2.00, which is 20% less than the price of a pound of leeks. What is the price of leeks. What is the price of a pound of leeks?

$$\text{ANS: } \$2.00 = 80\% * \text{LEEKS}$$

$$\text{LEEKS} = \$2.00 / (80\%) = \$2.00 / 0.8 = \$2.50$$

Also give a look to the quizzes for other kind of exercises