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17/ENG102/019  
COMPUTER ENGINEERING  
MATH101 - ASSIGNMENT

1. Let the sum of the three numbers be  $(a+d), a, (a-d)$

$$\text{Sum of the three numbers} = a+d + a + a-d = 18$$

$$= 3a = 18$$

$$a = \frac{18}{3}$$

$$a = 6$$

$$\text{Sum of their squares} = 206$$

$$(a+d)^2 + a^2 + (a-d)^2 = 206$$

Substituting the value of  $a$  in the eqn

$$= (6+d)^2 + 6^2 + (6-d)^2 = 206$$

$$36 + d^2 + 6^2 + 36 - d^2 = 206$$

$$36 + 6^2 + 36 + d^2 + d^2 = 206$$

$$36 + 36 + 36 + d^2 + d^2 = 206$$

$$108 + 2d^2 = 206$$

$$2d^2 = 206 - 108$$

$$2d^2 = 98$$

$$d^2 = \frac{98}{2}$$

$$d^2 = 49$$

$$d = 7$$

$$a + d = 13$$

2  $6 + 7 = 13$

$$a - d = -1$$

$$6 - 7 = -1$$

The numbers are:  $-1, 6, 13$ .

2. Let the three numbers in the GP be  $a/r, a, ar$

$$\text{The product of the 3 numbers} = 512$$

$$\Rightarrow \frac{a}{r} \times a \times ar = 512$$

$$a^3 = 512$$

$$\sqrt[3]{a^3} = \sqrt[3]{512}$$

$$a = 8$$

Sum of the three numbers = 28

$$\Rightarrow \frac{a}{r} + a + ar = 28; \text{ substitute } a \text{ into the eqn}$$

$$= \frac{8}{r} + 8 + 8r = 28$$

$$\frac{8}{r} + 8r = 28 - 8$$

$$\frac{8}{r} + 8r = 20$$

$$\frac{8 + 8r^2}{r} \times = 20$$

$$8 + 8r^2 = 20r$$

$$8r^2 - 20r + 8 = 0; \text{ factorizing}$$

$$8r^2 - 16r - 4r + 8 = 0$$

$$8r(r-2) - 4(r-2) = 0$$

$$(8r-4)(r-2) = 0$$

$$8r-4 = 0$$

$$8r = 4$$

$$r = \frac{4}{8}$$

$$r = \frac{1}{2}$$

$$r-2 = 0$$

$$r = 2$$

$$\therefore r = \frac{1}{2}, 2$$

The three numbers are 4, 8, 16