

## QUESTION 1 SOLUTIONS

Let the 3 numbers be  $a$ ,  $(a+d)$ ,  $(a-d)$

sum of numbers is 18:

$$\Rightarrow a + a + d + a - d = 18$$

$$\Rightarrow a + a + a + d - d = 18$$

$$\Rightarrow 3a = 18$$

$$a = 6$$

sum of their squares is 206:

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

since  $a = 6$ ,

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

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

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

$$\Rightarrow 2d^2 = 98$$

$$d^2 = 49$$

$$d = 7$$

Therefore,  $a = 6$  and  $d = 7$

hence, the 3 numbers are:

$$a = 6$$

$$a + d = 13$$

$$a - d = -1$$

## QUESTION 2 SOLUTIONS

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

product of numbers

$$\Rightarrow a(ar)(a/r) = 512$$

$$a^3 = 512$$

$$a = 8$$

sum of numbers

$$\Rightarrow a + ar + a/r = 28$$

$$\text{but } a = 8$$

hence,

$$\Rightarrow 8 + 8r + 8/r = 28$$

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

$$\Rightarrow 8r^2 - 20r + 8 = 0$$

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

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

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

Therefore,  $r = 2$  or  $r = 1/2$

Now, the three numbers are 4, 8, 16.