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### Question 1

Let the three number  $a$ ,  $(a+d)$ ,  $(a-d)$

Sum of the three number is 18

$$a + a + d + a - d = 18$$

$$3a = 18$$

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

$$a = 6$$

The sum of their squares

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

Since  $a = 6$

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

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

$$= 36 + 36 + 12d + d^2 + 36 - 12d + d^2 = 206$$

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

$$= 2d^2 = 98$$

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

$$d = \sqrt{49}$$

$$d = 7$$

Since  $a = 6$ ,  $d = 7$

∴ The three numbers are

$$a = 6$$

$$(a+d) = 6 + 7 = 13$$

$$a-d = 6 - 7 = -1$$

The three numbers are  $-1, 6, 13$

## Question 2

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

Product of number

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

$$* a^3 = 512$$

$$a = \sqrt[3]{512} \quad (8, 8, 8) \quad \text{Product of number } 8 \times 8 \times 8 = 512$$

$$a = 8$$

Sum of numbers

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

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

hence,

$$8 + 8r + 8/r = 28$$

~~8~~ multiply through by  $(r)$

$$= 8r + 8r^2 + 8 = 28r$$

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

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

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

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

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

$$(r-2)$$

$$r = 2$$

$$(8r-4)$$

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

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

$$ar = \left(8 \times \frac{1}{2}\right) = 4$$

$$a/r = \left(8 / \frac{1}{2}\right) = 16$$

The three numbers are ~~4, 8, 16~~ 4, 8, 16