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Mechatronics

19/Bny 05/023

MATH'S 101

1 $a = -10$

$$T_{15} = a + (15-1)d = 11$$

$$11 = -10 + (14)d$$

$$21 = 14d$$

$$d = 21/14$$

$$d = 3/2$$

Last term = 41

$$41 = a + (n-1)d$$

$$41 = -10 + (n-1)3/2$$

$$51 = (n-1)3/2$$

$$102 = 3(n-1)$$

$$n-1 = 34$$

$$n = 35$$

Sum of all the terms

$$S = n/2 (2a + (n-1)d)$$

$$= 35/2 (2(-10) + (35-1)3/2)$$

$$= 35/2 (-20 + 51)$$

$$= \frac{35(31)}{2}$$

$$= 542.5$$

$$S = 542.5 //$$

2 $a = 180$

$$d = 175 - 180 = -5$$

last term = 25

$$25 = 180 + (n-1)(-5)$$

$$-155 = (n-1)(-5)$$

$$n-1 = +31$$

$$n = 32$$

Sum of all terms

$$S = n/2 (2a + (n-1)d)$$

$$S = 32/2 (2(180) + (32-1)(-5))$$

$$= 32/2 (360 - 155)$$

$$= 32/2 (205)$$

$$S = 3280 //$$

3

roots = $1/2$ and $3/2$ $x = 1/2$ and $x = 3/2$

$$x - 1/2 = 0$$

$$x - 3/2 = 0$$

$$\frac{2x-1}{2} = 0$$

$$\frac{2x-3}{2} = 0$$

$$\frac{(2x-1)}{2} \cdot \frac{(2x-3)}{2} = 0$$

$$(2x-1)(2x-3) = 0$$

$$4x^2 - 6x - 2x + 3 = 0$$

$$4x^2 - 8x + 3 = 0 //$$