

Arithmetic Progression

$$1) \quad a_n = 2n + 1$$

$$a_1 = 3$$

$$a_2 = 5$$

$$a_3 = 7$$

$$d = 2 \quad (b)$$

$$2) \quad AP: 2, 5, 8, \dots, 59$$

$$a_n = 59, \quad a = 2, \quad d = 3$$

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

$$59 = 2 + (n-1)3$$

$$57 = 3(n-1)$$

$$n-1 = 19$$

$$n = 20 \quad (c)$$

$$3) \quad AP: -11, -8, -5, \dots$$

$$d = -8 + 11 = 3$$

$$a_4 = -5 + 3 = -2$$

$$a_5 = -2 + 3 = 1 \quad (a)$$

4) AP 2, 5, 8, ..., 35

$$a = 35 \quad d = -3$$

$$\begin{aligned} a_4 &= a + 3d \\ &= 35 + 3 \times -3 \\ &= 26 \quad (b) \end{aligned}$$

5) $a_{11} = 35$ $a_{15} = 41$
 $35 = a + 10d$ $41 = a + 12d$

$$\begin{array}{r} a + 12d = 41 \\ -a + 10d = 35 \\ \hline 2d = 6 \\ d = 3 \quad (d) \end{array}$$

6) AP $\sqrt{8}, \sqrt{18}, \sqrt{32}, \dots$
 $a = \sqrt{8} \quad d = \sqrt{2}$

$$\sqrt{32} + \sqrt{2} = 5\sqrt{2} \quad (a)$$

Sunday 8

Week 41

281-084

$$7) a_5 = a_{10} = 5a \quad a_{15} = ?$$

$$a + 4d = a + 9d = 5a$$

$$a + 4d = 5a \quad a + 9d = 5a$$

$$d = \frac{4a}{4}$$

$$d = a$$

$$9d = 4a$$

$$d = 0$$

$$\Rightarrow a_{15} = a + 14d$$

$$= 0 + 14 \times 0$$

$$= 0$$

8) b) 3, 7, 12, 18 is not an AP.

a) 1, 3, 5, 7, ...

$$a = 1 \quad n = 20$$

$$d = 2$$

$$S_n = \frac{n}{2} (2a + (n-1)d)$$

$$= \frac{20}{2} (2 + 38)$$

$$10 \times 40 = 400 \quad (c)$$

10) 1, 2, 3 20

$$a = 1 \quad n = 20$$

$$d = 1 \quad a_n = 20$$

$$S_n = \frac{n}{2} (a + a_n)$$

$$= 10 \times (1 + 20)$$

$$= 210 \quad (A)$$