Exercise 5.2

1.	a	d	n	a_n
(i)	7	3	8	28
(ii)	-18	2	10	0
(iii)	46	-3	52	-5
(iv)	-18.9	2.5	10	3.5
(v)	3.5	0	105	3.5

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(i)

30th term of AP: a = 10, d = 7 − 10 = −3, n = 30

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

$a_n = 10 + (30-1)(-3)$

$a_n = 10 + (29)(-3)$

$= 10 + (-87)$

$= 10 - 87$

$= -77$ (Ans)

(ii) 11th term of AP: $-3, -\frac{1}{2}, 2, \ldots$

$a = -3$, $d = -\frac{1}{2} - (-3)$, $n = 11$

$= -\frac{1}{2} + 3$

$= \frac{-1+6}{2}$

$= \frac{5}{2}$

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

$a_n = (-3) + 10(\frac{5}{2})$ $a_n = -3 + 25$

$a_n = 22$

3) 2, 14, 26

c) 18, 13, 8, 3

d) 5, $6\frac{1}{2}$, 8, $9\frac{1}{2}$

e) $-4, -2, 0, 2, 4, 6$

f) 53, 38, 23, 8, $-7, -22$

4) $a_n = 78$ $a = 3$ $d = 8-3$
$= 5$
$13-8$
$= 5$

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

$\Rightarrow 78 = 3 + (n-1)5$

$\Rightarrow 78 = 3 + 5n - 5$

$\Rightarrow 78 - 3 + 5 = 5n$

$\Rightarrow 80 = 5n$

$\Rightarrow \frac{80}{5} = 16 = n$

$\Rightarrow 16 = n$

So $n = 16$

16th term will be 78

(11) Here $a = 7$, $d = 13 - 7 = 6$ and $a_n = 205$

$$205 = 7 + (n-1)6$$

$$\Rightarrow (n-1) = \frac{198}{6}$$

$$\Rightarrow n = 33 + 1 = 34$$

(12) $a = 18$,

$$d = 15\frac{1}{2} - 18 = \frac{31 - 36}{2}$$

$$= \frac{-5}{2}$$

$a_n = -47$

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

$$-47 = 18 + (n-1)\left(-\frac{5}{2}\right)$$

$$\Rightarrow (n-1) = \frac{65 \times 2}{5} = 26$$

$$n = 26 + 1 = 27$$