

$$\left[6\left(\frac{2x-3}{7-2}\right)\right] + \frac{9}{2} = \frac{37}{7}$$

$$\Rightarrow \frac{3\left(\frac{2x-3}{7-2}\right) + \frac{9}{2} = \frac{37}{7}}$$

$$\Rightarrow \frac{6x}{14} - \frac{9}{4} + \frac{9}{2} = \frac{37}{7}$$

$$\frac{12x}{28} + \frac{63}{28} = \frac{148}{28}$$

$$\Rightarrow 12x + 63 = 148$$

$$\Rightarrow x = \frac{85}{12}$$

62. (1) ATQ,

$$a^3 - b^3 = (a-b)((a-b)^2 + 3ab) \\ = 10(100 + 3(-24)) \\ = 280$$

63. (3) ATQ,

$$2x + \frac{4}{5} = \frac{33}{5}$$

$$\Rightarrow 10x^2 + 20 - 33x = 0$$

$$\Rightarrow 10x^2 - 25x - 8x + 20 = 0$$

$$\Rightarrow 5x(2x-5) - 4(2x-5) = 0$$

$$\Rightarrow (5x-4)(2x-5) = 0$$

$$\Rightarrow x = \frac{4}{5}, \frac{5}{2}$$

64. (3) ATQ,

$$a + 10d - a - 55d = -25 - 200$$

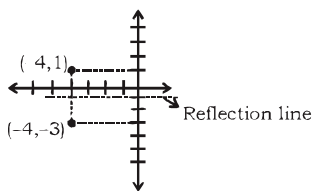
$$\Rightarrow 45d = 225$$

$$\Rightarrow d = 5$$

$$\text{then, } a = -75$$

$$\text{Hence, } T_{100} = a + 99d = -75 + 99 \times 5 \\ = 420$$

65. (2)



Hence, Required points = $(-4, 1)$

66. (2) ATQ,

$$(k-2)^2 + (7-19)^2 = (37)^2$$

$$\Rightarrow k^2 - 4k + 4 + 144 = 1369$$

$$\Rightarrow k^2 - 4k - 1221 = 0$$

$$\Rightarrow (k-37)(k+33) = 0$$

$$\Rightarrow k = 37, -33$$

67. (1) ATQ,

$$\sin 2A = \cos(4A - 30^\circ) = \sin(90^\circ - 4A + 30^\circ)$$

$$\Rightarrow 2A = 120 - 4A$$

$$\Rightarrow A = 20^\circ$$

$$\text{Hence, } 3A - 16^\circ = 3 \times 20 - 16^\circ = 44^\circ$$

68. (4) ATQ,

$$\tan 9^\circ \times \tan 30^\circ \times \tan 45^\circ \times \tan 81^\circ$$

$$= \tan 9^\circ \times \frac{1}{\sqrt{3}} \times 1 \times \cot 9^\circ = \frac{1}{\sqrt{3}}$$

69. (3) ATQ,

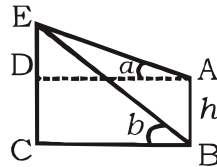
$$XY^2 = XA \times XB$$

$$\Rightarrow 6^2 = 3 \times (3+x)$$

$$\Rightarrow 12 = 3+x$$

$$\Rightarrow x = 9\text{cm}$$

70. (3) ATQ,



$$\frac{EC}{CB} = \tan b$$

$$\Rightarrow CB = EC \cot b \text{ —————(i) and}$$

$$\frac{ED}{CB} = \tan \alpha$$

$$\Rightarrow CB = ED \cot \alpha \text{ —————(ii)}$$

by equations (i) and (ii),

$$EC \cot b = ED \cot \alpha$$

$$(h + ED) \cot b = ED \cot \alpha$$

$$ED = \frac{h \cot b}{\cot \alpha - \cot b}$$

Hence, height of building = $h + ED$

$$= h + \frac{h \cot b}{\cot \alpha - \cot b} = \frac{h \cot \alpha}{\cot \alpha \cot b}$$

71. (2) ATQ,

$$\sec \theta + \tan \theta = \frac{19}{2}$$

$$\text{then, } \sec \theta - \tan \theta = \frac{2}{19}$$

$$\text{then } \sec \theta = 2 \times \left[\frac{19}{2} + \frac{2}{19} \right] = \frac{365}{19}$$

$$\text{Hence, } \cos \theta = \frac{19}{365}$$

72. (1) D

73. (2) Required %

$$= \frac{(525 - 500)}{500} \times 100 = 5\%$$

74. (4) Total revenue in 2015 = $3 + 5$

$$+ 1 + 0.5 = 9.5 \text{ crore}$$

$$\text{Total revenue in 2016} = 3.3 + 5.25$$

$$+ 1.2 + 1 = 10.75 \text{ crore}$$

$$\text{Hence, Required difference} = 10.75$$

$$- 9.5 = 1.25 \text{ crore}$$

75. (2) Total revenue in 2015 and 2016

$$= 9.50 + 10.75 = 20.25 \text{ crore}$$

$$\text{Total cost in 2015 and 2016} = 10$$

$$+ 10 = 20 \text{ crore}$$

Hence, Cumulative profit

$$= 20.25 - 20$$

$$= 0.25 \text{ crore}$$

$$= 25 \text{ lakh}$$

88. (1) First form of verb is used after 'couldn't help but'. Hence replace 'had to cry' to with only 'cry'.

89. (2) Here 'thief' is not doing an action but the action is done on the subject (thief). Thus formation of sentence should be in passive voice. So replace 'from burning' with 'from being burnt'.

94. (1) 'Him' is used as an object form of pronoun. Hence replace 'him'

with 'he'. Also 'It + be any form' is

followed by subject form of pronoun.

95. (3) Change 'from' into 'on'. Dates takes 'on'.