Summative Assessment III 2025-26
Answer key
Mathematics

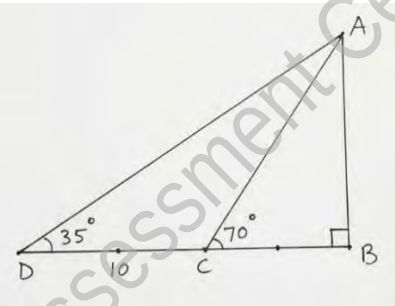
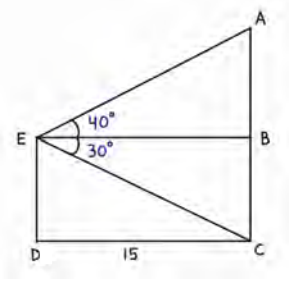
SET – A

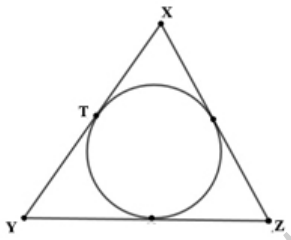
Qn No	Score	Answer/Value points	Further Information
		Section A	
1	1	B. 32	
2	1	D. 38	
3	1	A. (0, 5)	
4	1	C. 30	
5	1	D. 20	
6	1	A. 2, 4	
7	1	B. (i), (iv) are true	
8	1	C. Both statements are true and statement 2 is the reason of statement 1.	
		Section B	
9	2	$\frac{60}{360}$	
10	1 2	i) 5 ii) 9^{th} term = 50 For decrease 50 ($10 \times 5 = 50$) Need to add 10 places $9 + 10 = 19^{th}$ term	
11.A	1 1 1	235 325 523 253 352 532 (i) 6 (ii) $\frac{2}{6}$ (iii) $\frac{2}{6}$	
11.B	1 1 1	**OR** (i) $10 \times 15 = 150$ (ii) $\frac{6\times7}{10\times15} = \frac{42}{150}$ (iii) $1 - \frac{42}{150} = \frac{108}{150}$	

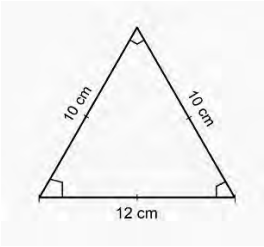
12.A	1 1 2	(i) $\frac{60}{3} = 20$ (ii) $20 - 5 = 15$ (iii) 2^{nd} term = 5 5^{th} term = 15 8^{th} term = 25 Sum of the first 15 term = 25 × 15 = 375	
12.B	1 1 2	**OR** (i) 3, 8, 13, 18, … (ii) 3 (iii) 3, 8, 13, 18, … = (5 ×0 +3), (5×1+3), (5×2+3), … If we take two consecutive terms in this sequence, the first term is 3 added to a multiple of 5, and the next term is 3 added to the next multiple of 5. Therefore, to get the next term it is enough to add 5 to the previous term. Hence, it is an arithmetic sequence.	
13	1 1 1 1 1	<table><tr><th>Weight (Kg)</th><th>Number of person</th></tr><tr><td>Below 40</td><td>5</td></tr><tr><td>Below 50</td><td>7+5 = 12</td></tr><tr><td>Below 60</td><td>9 + 12 = 21</td></tr><tr><td>Below 70</td><td>10 +21 = 31</td></tr><tr><td>Below 80</td><td>10 + 31 = 41</td></tr><tr><td>Below 90</td><td>8 + 41 = 49</td></tr><tr><td>Total</td><td>49</td></tr></table> (i) $\frac{49+1}{2} = 25$ (ii) $d = \frac{10}{10} = 1$ Weight of 22^{nd} person = $60 + \frac{1}{2}$ $= 60 + \frac{1}{2} = 60\frac{1}{2}$ (iii) $60\frac{1}{2} + 3 \times 1 = 63\frac{1}{2}$	

14		**Section C**	
	1	(i) $r = \sqrt{(8-2)^2 + (9-1)^2}$	
	1	$= \sqrt{6^2 + 8^2} = 10$	
	1	(ii) $(x-2)^2 + (y-1)^2 = 10^2$	
15	2	(i) B (10, 5), D (2, 11)	
		(ii) $\lvert 10 - 2 \rvert = 8$	
	1	(iii) $AC = \sqrt{(10-2)^2 + (11-5)^2}$	
	1	$= \sqrt{8^2 + 6^2} = 10$	
16.A	1	(i) (8, 7)	
	1	(ii) Slope of AC $= \frac{7-2}{8-1} = \frac{5}{7}$	
		(iii) $(y-2) = \frac{5}{7}(x-1)$	
		$7y - 14 = 5x - 5$	
	2	$5x - 7y - 5 + 14 = 0$	
		$5x - 7y + 9 = 0$	
		(iv) (1, 2) (0, 0)	
	1	$\frac{2-0}{1-0} = \frac{2}{1} = 2$	
		Slope of the line is 2 so the line didn't passes through its origin	
16.B		**OR**	
	2	(i) $P\left(\frac{3+1}{2}, \frac{6+0}{2}\right) = (2, 3)$	
		$Q\left(\frac{11+1}{2}, \frac{0+0}{2}\right) = (6, 0)$	
	1	(ii) $\left(\frac{9}{2}, \frac{6}{2}\right) = \left(\frac{9}{2}, 3\right)$	
	2	(iii) $X = 3 + \frac{2}{3}(6-3) = 3+2 = 5$	
		$Y = 6 + \frac{2}{3}(0-6) = 6-4 = 2$	
		G (5, 2)	
17		**Section D**	
	1	(i) $x(x+6) = 56 \times 2$	
		$x^2 + 6x = 112$	
	2	(ii) $x^2 + 6x + 9 = 112 + 9$	
		$(x+3)^2 = 121$	
		$x + 3 = 11$	
		$x = 8$	

18	1 1 2	(i) 2 (ii) 1 (iii) sequence 1: $x_n = 3n + 2$ $(xn)^2 = (3n+2)^2$ $= 9n^2 + 12n + 4$ $= (9n^2 + 12n+3) +1$ When the sequence of the terms of this arithmetic sequence is divided by 3, the remainder is 1. Hence, 2 is the term in this sequence.	
19 A	1 3	(i) $2 \times 5^2 + 3\times5= 65$ (ii) $2n^2 + 3n = 324$ $2n^2 + 3n - 324 = 0$ $n = \frac{-3\pm\sqrt{(3)^2-4\times2\times-324}}{2\times2}$ $= \frac{-3\pm\sqrt{2601}}{4} = \frac{-3\pm51}{4}$ $= \frac{-3+51}{4}$ **or** $\frac{-3-51}{4}$ $= \frac{48}{4}$ **or** $\frac{-54}{4}$ $n = 12$	
19 B	 1 1 1 1	**OR** (i) 4, 12, 20, … $x_n = 8n-4$ $S_n = \frac{8n\,(n+1)}{2} - 4n$ $= 4n(n+1) - 4n$ $= 4n^2+4n-4n$ $= 4n^2$ $= 2^2n^2$ $= (2n)^2$ (ii) Write any suitable sequence, such as the sequences obtained by multiplying the odd numbers by a perfect square.	
20	 $\frac{1}{2}$ $\frac{1}{2}$	**Section E** $PA \times PB = r^2-d^2$ $4\times1 = r^2 - 3^2$ $4 = r^2-9$	

	1	$r^2 = 4+9$ $r = \sqrt{13}$	
21	1 $\frac{1}{2}$ $\frac{1}{2}$ 1	The perpendicular sides of the right-angled triangle formed when a perpendicular is drawn from C to the axis are 1, 1 Angle 45º, 45º, 90º OC = $\sqrt{2}$ OA = $\sqrt{2}$ Area = base × height = $\sqrt{2} \times 1 = \sqrt{2}$	
22	1 2	(i) $\angle ACB = 110^o$ (ii) AB join AC = BC $\angle BAC = \frac{180^o - 110^o}{2} = 35^o$ $\angle CBT = 35^o$	
23.A	1 3	(i)  (ii) $\angle DAC = 35^o$ AC = 10 AB = AC × Sin 70º = 10 × 0.9397 = 9.4 metre	
23.B	 1	 (i) BC = 15 × tan 30º	

	3	= 15 × 0.5774 = 8.661metre AB = 15 × tan 40º = 15 × 0.8391 = 12.5865 metre (ii) Height of small building = 8.661 metre Height of tall building = 8.661 + 12.5865 = 21.2475 metre	
24.A	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ 2	**A.(I)** (i) $BQ = 6-x$ $CR = 5- x$ (ii) $AP = 2x + 2(5-x)+2(6-x) = 15$ $10+12- 2x = 15$ $2x=7$, $x = \frac{7}{2}$ **A.(II)**  $XY+XZ-YZ$ $=XT+YT+XQ+QZ-YZ$ $=XT+XQ+YT+QZ-YZ$ $=2\ XT\ +YP\ +PZ-YZ$ $=2\ XT\ +\ YZ-YZ$ $=2XT$	
24.B	1 3	**OR** (i) Line DQ passes through the centre of the circle that touches the line PQ and CD (ii) $2x+2y = 180^o$ $x+y = 90^o$ $\angle POQ + x+y = 180^o$ $\angle POQ + 90^o = 180^o$ $\angle POQ = 90^o$	

25.A	5	 Slant height $= \sqrt{10^2 - 6^2} = 8$ h = $\sqrt{8^2 - 6^2} = \sqrt{28}$ V = $\frac{1}{3} \times 12 \times 12 \times \sqrt{28} = 48\sqrt{28}$ $= 96\sqrt{7}$	
25.B	3 2	**OR** R = l = 15, (i) l = 15 $\frac{0}{15} = \frac{216}{360} = \frac{3}{5}$ $r = \frac{3}{5} \times 15 = 9$ $h = \sqrt{15^2 - 9^2} = 12$ (ii) V = $\frac{1}{3}\ \pi \times 9 \times 9 \times 12$ $=324\ \pi$	
26	1 1 1	To drawing circle of radius 3 centimetres To calculating central angles To drawing triangle	
27	1 1 1 1	To draw a square with an area of 15 centimetres Add the measure of the height to the length of the rectangle and draw it, Then, draw a semicircle using this length as the diameter To draw one side of the square To draw the square.	
28	1 1 1 1	Drawing the circle and the line of 7 cm from the centre. Finding the perpendicular bisector (this locates the centre of the second circle). Locating the points through which the tangents will pass. Drawing the tangents accurately	