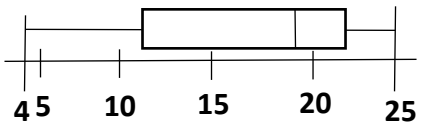
Grade 10 TOTAL 97 P 2 MEMO November 2022

Question 1 TOTAL 11

1.1	18	• answer	1
1.2	$Q_1 = 12,5$ $Q_3 = 22$ $IQR = 9,5$	• Q_1 • Q_3 • answer	3
1.3		• 4 and 25 • Median: 18 • Q_1 *and* Q_3	3
1.4	$\overline{x} = \frac{223}{13}$ $= 17,15$	• 223 • answer	2
1.5	$\frac{17,15 + x + 5}{2} = 18$ $x = 13,85$	• Method • answer	2

Question 2 TOTAL 5

2.1	Midpoint column F x midpoint	• midpoint • x	2
2.2	$\overline{x} = \frac{1370}{50}$ $\overline{x} = 27,4$	• fraction 1365 • answer	2
2.3	26%	• answer	1

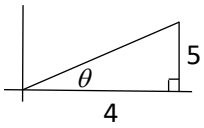
Question 3 TOTAL 16

3.1	$m_{BC} = \frac{-2+6}{4+4}$ $= \frac{1}{2}$	• subst in form • answer	2
3.2	$x = 5$ $y = 6$ **Not a coordinate**	• x • y	2
3.3	$BC = \sqrt{(4+4)^2 + (-6+2)^2}$ $= \sqrt{80} = 4\sqrt{5}$ $= 8,94$	• subst in form • answer; any form	2
3.4	Parallelogram, one pair opposite sides = and ||	• Parm • Reaon	2

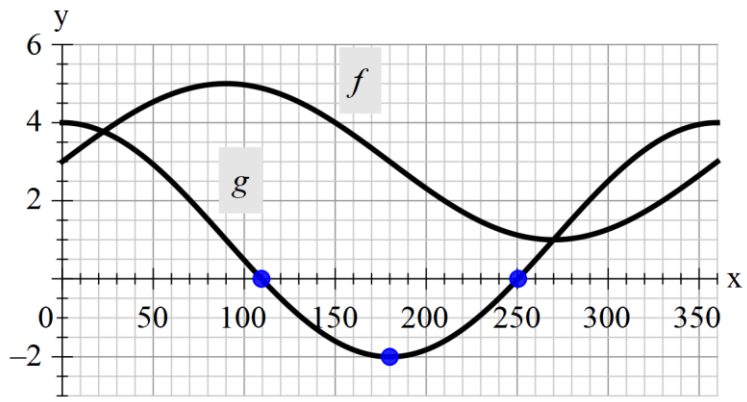
3.5	$m_{AD} = -2$ $y = mx + c$ $2 = -2(-2) + c$ $-2 = c$ $y = -2x - 2$	• m_{AD} • subst in formula • equation	3
3.6	$Eq\ BC:\ \ m = \frac{1}{2}$ $-2 = \frac{1}{2}(4) + c$ $-4 = c$ $y = \frac{1}{2}x - 4$ $-2x - 2 = \frac{1}{2}x - 4$ $-5x = -4$ $x = \frac{4}{5}$ $y = -\frac{18}{5}\ \ OR\ \ -3\frac{2}{5}$ $D\left(\frac{4}{5}; \frac{-18}{5}\right)$	• subst in form • equation • equate • x value • y value	5

Question 4 TOTAL 18

4.1	$3\left(\frac{1}{\sin 42,6°}\right) - \tan^3 28,3°$ $= 4,28$	• subst • answer	2
4.2.1	$\tan\beta = \frac{12}{36}$ $\beta = 18,43°$	• ratio • β value	2
4.2.2	$2\cos(\beta - 40) = 1,63$ $\cos(\beta - 40) = 0,815$ $\beta - 40 = 35,41$ $\beta = 75,41°$ **DEGREE PENALTY**	• 0,815 • 35,41 … • β (*answer only full marks)	3
4.3	$\frac{2\left(\frac{1}{\sqrt{2}}\right)^2\left(\frac{1}{\sqrt{3}}\right)}{\frac{1}{\sqrt{3}}}$ $= 1$	• Method • Subst 45 • Subst tan and cot • Answer 2/4 if no diagrams	4

4.4.1	 $r^2 = 25 + 16$ $r = \sqrt{41}$ $\sin\theta\cos\theta = \left(\frac{5}{\sqrt{41}}\right)\left(\frac{4}{\sqrt{41}}\right)$ $= \frac{20}{41}$	• triangle • Pyth $\sqrt{41}$ • subst • answer	4
4.4.2	$\left(\frac{4}{\sqrt{41}}\right)^2 - \left(\frac{5}{\sqrt{41}}\right)^2$ $= \frac{16}{41} - \frac{25}{41}$ $= \frac{-9}{41}$	• $\frac{5}{\sqrt{41}}$ OR $\frac{25}{41}$ • $\frac{4}{\sqrt{41}}$ • answer	3

Question 5 TOTAL 14

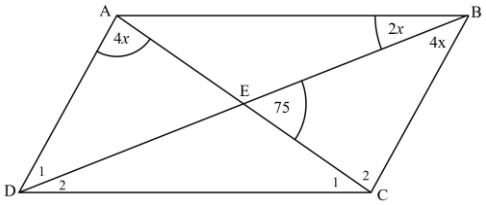
5.1	$a = 2$ $q = 3$	• a • q	2
5.2		• shape • TP • intercepts	3
5.3	$y \in [-2;4]$	• values • brackets	2
5.4	3	• answer	1
5.5	$x \in (270;360)$	• 270; 360 • ( )	2

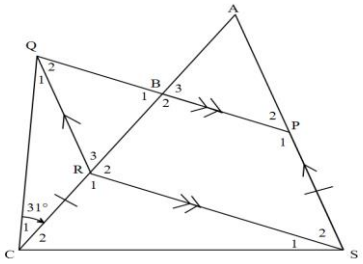
5.6	$2,8 = 3\cos x + 1$ $x = 53,13$	• subst • answer	2
5.7	$K > -4$	• answer •	2

Question 6 TOTAL 4

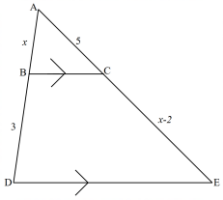
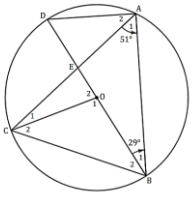
$\tan\alpha = \frac{y}{BC}$ $\tan\theta = \frac{x}{BC}$ $BC = \frac{y}{\tan\alpha}$ $BC = \frac{x}{\tan\theta}$ $\frac{y}{\tan\alpha} = \frac{x}{\tan\theta}$ $\frac{\tan\theta}{\tan\alpha} = \frac{x}{y}$	• $\tan\alpha$ = • $\tan\theta$ = • equate • manipulating	4

Question 7 TOTAL 7



7.1.1	$\hat{D}_1 = 4x$ alt angles AD//BC	• $\hat{D}_1$ • reason	2
7.1.2	$\hat{D}_2 = 2x$ alt angles $AB \parallel OC$ $\hat{D} = \hat{B}$ opposite angles of parallelogram $105 - 4x + 2x = 6x$ $x = 13,13^0$	• $\hat{D}_2$ & reason • S & R • Equate • Answer	
7.2	 $PS = QR$ =31° opp. sides of parm $\hat{C}_1 = \hat{Q}_1$ ∠'s opp = sides $\hat{R}_3 = 62^0$ ext angle of Δ $\hat{A} = 62^0$ alt ∠'s ;QR//AS	• statement and reason • $\hat{Q}_1$ • reason • statement and reason • statement and reason	5

Question 8 TOTAL 22

8.1	Construct OA and OB In ΔAOD and ΔBOD $AD = BD$ given OD common side $AO = BO$ radii, construction $\Delta AOD \equiv \Delta BOD$ SSS $\therefore O\hat{D}A = O\hat{D}B$ angles $\equiv$ But $O\hat{D}A = O\hat{D}B = 90^0$ adj angles straight line $\therefore OD \perp AB$	• construct • OD S&R AD = BD • radii • SSS • Both 90^0	5
8.2.1	$PT = 24$ line from centre $\perp$ chord $PO^2 = 24^2 + 7^2$ Pyth $PO = 25$	• statement and reason • pyth • answer	3
8.2.2	$TS = 25 - 7 = 18$	• answer	1
8.3	 $\frac{x}{3} = \frac{5}{x-2}$ line $\parallel$ side of triangle OR Prop th BC $\parallel$ DE $x^2 - 2x - 15 = 0$ $(x+3)(x-5) = 0$ $x = 5$	• ratio • reason • standard form • factors • choosing	5
8.4.1	 $\hat{O}_1 = 102^0$ angle in centre = 2 x angle on circle	• statement • reason	2
8.4.2	$\hat{A}_2 = 39^0$ angle in half circle	• statement • reason	2
8.4.3	$\hat{D} = 61^0$ sum angles of triangle	• statement • reason	2
8.4.4	$\hat{C}_2 = \frac{180 - 102}{2}$ angles opposite equal sides: radii $\hat{C}_2 = 39^0$	• reason • answer	2