

# Memo

## QUESTION 1 [15]

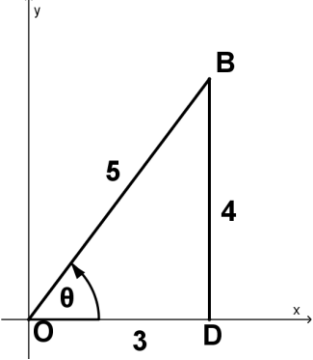
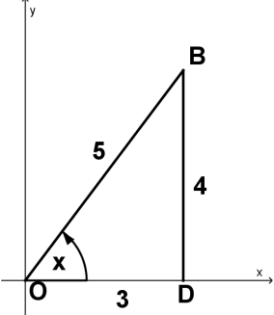
1.1	$ _{BC} = \sqrt{(1 - (-7))^2 + (3 - (-1))^2}$ $= 4\sqrt{5} \text{ or } 8,94$ $ _{AD} = \sqrt{(-9 - (-1))^2 + (3 - 7)^2}$ $= 4\sqrt{5} \text{ or } 8,94$ $\therefore DE = 4\sqrt{5} \text{ or } 8,94$	✓ formula ✓ subst ✓ answer ✓ subst ✓ AD ✓ DE	(6)
1.2	$E(2(-1) - (-9); 2(7) - 3)$ $E(7; 11)$	✓ x-value ✓ y-value	(2)
1.3	$m_{BC} = \frac{3 - (-1)}{1 - (-7)}$ $= \frac{1}{2}$	✓ formula ✓ subst ✓ answer	(3)
1.4	$m_{AD} = \frac{1}{2} \text{ AD} \parallel \text{BC}$	✓✓ answer	(2)
1.5	Parallelogram, one pair of opposite sides are parallel and equal	✓ answer ✓ reason	(2)  <b>[15]</b>

## QUESTION 2 [17]

2.1	$ _{BD} = \sqrt{(-4 - 4)^2 + (2 - (-4))^2}$ $= 10$	✓ formula ✓ subst ✓ answer	(3)
2.2	$M\left(\frac{4 - 4}{2}; \frac{-4 + 2}{2}\right)$ $M(0; -1)$	✓ substitution ✓ x-value ✓ y-value	(3)
2.3	$m_{AD} = \frac{4 - 2}{0 - (-4)}$ $= \frac{1}{2}$	✓ formula ✓ subst ✓ answer	(3)

2.4	$m_{AB} = \frac{4 - (-4)}{0 - 4}$ $= -2$ $\therefore m_{AD} \times m_{AB} = \frac{1}{2} \times -2$ $= -1$ $\therefore m_{AD} \perp m_{AB}$	✓ subst ✓ gradient ✓ product	(3)
2.5	<i>parm</i> with one internal angle = 90°	✓ answer	(1)
2.6	$y = \frac{1}{2}x - 2\frac{1}{4}$	✓✓ answer	(2)
2.7	C(0;-6)	✓✓ answer	(2)
			<b>[17]</b>

**QUESTION 3 [12]**

3.1.1	 $ _{OB} = \sqrt{3^2 + 4^2}$ $= 5$	✓ subst ✓ answer	(2)
3.1.2	$\left(\frac{4}{5}\right)^2 + \left(\frac{3}{5}\right)^2$ $= 1$	✓✓ subst ✓ answer	(3)
3.2.1		✓✓ sketch	(5)

	$\sin x = \frac{4}{5}$ $l_{OD} = \sqrt{5^2 - 4^2}$ $= 3$ $1 + \tan^2 x = 1 + \left(\frac{4}{3}\right)^2$ $= \frac{25}{9}$	✓ adj side ✓ subst ✓ answer	
3.2.2	$\sec^2 x = \left(\frac{5}{3}\right)^2$ $= \frac{25}{9}$ $= 1 + \tan^2 x$	✓ subst ✓	(2) <b>[12]</b>

#### QUESTION 4 [11]

4.1.1	$\sin H = \frac{SP}{SH} = \frac{PB}{PH}$	✓✓ answer	(2)
4.1.2	$\cos S = \frac{SP}{SH} = \frac{SB}{SP}$	✓✓ answer	(2)
4.2.1	$\frac{SR}{RQ} = \tan 35^\circ$ $\therefore RQ = \frac{12}{\tan 35^\circ}$ $= 17,14\text{m}$	✓ ratio ✓ subst ✓ answer	(2)
4.2.2	$\hat{S}PQ = 25^\circ \text{ alt } \angle\text{s}$ $\frac{12}{RP} = \tan 25^\circ$ $\therefore RP = \frac{12}{\tan 25^\circ}$ $= 25,73\text{m}$ $\therefore QP = 8,59\text{m}$	✓ ratio ✓ subst ✓ RP ✓ QP	(4)

**QUESTION 5 [10]**

5.1	$\tan x = 2,22$ $x = \tan^{-1}(2,22)$ $x = 65,75^{\circ}$	✓✓ answer	(2)
5.2	$2 \cos(x + 10^{\circ}) = 0,846$ $\cos(x + 10^{\circ}) = 0,423$ $x + 10^{\circ} = \cos^{-1}(0,423)$ $x + 10^{\circ} = 64,98^{\circ}$ $x = 54,98^{\circ}$	✓ ✓ ✓ ✓ answer	(4)
5.3	$\sec x = 2$ $\cos x = \frac{1}{2}$ $x = \cos^{-1}\left(\frac{1}{2}\right)$ $x = 60^{\circ}$	✓ ✓ ✓ ✓ answer	(4) <b>[10]</b>

**QUESTION 6 [10]**

6.1		For each graph: ✓ shape ✓ TP ✓ x-int	(6)
6.2	$-2 \leq y \leq 0$	✓✓	(2)
6.3	Reflection in the x-axis	✓✓ answer	(2) <b>[10]</b>