PYTHAGORAS

Pearson Edexcel – Specimen 2 - Paper 1 (Non-Calculator) Foundation Tier

1.

22		No with reasoning	M1 M1 A1 C1	Derive AC=9 cm and identify as hypotenuse $4^2 + 7^2$ for using eg $AC = \sqrt{4^2 + 7^2}$ or 65 and 81 for concluding explanation that ABC is not a right-angled triangle with evidence.

Pearson Edexcel – Specimen 2 - Paper 3 (Calculator) Foundation Tier

2.

28		complete chain of reasoning	C1 C1 C1	starts chain of reasoning eg finds area of large square and area of triangle or use of Pythagoras for $(x+y)^2 - 4\times(x\times y\div 2)$ oe or $\sqrt{x^2+y^2}\times\sqrt{x^2+y^2}$ complete chain of reasoning with correct algebra

OCR Tuesday 11 June 2019 – Morning (Calculator) Foundation Tier

3.

23	a		60 or 30 seen as angle $10 \times \sin 60$ or $10 \times \cos 30$ 8.660[...] Alternative method by Pythagoras 5 seen as side $\sqrt{10^2 - 5^2}$ 8.660[...]	B1 M2 A1 dep B1 M2 A1 dep	May be correctly marked on diagram **M1** for $\sin 60 = \frac{AC}{10}$ oe or $\cos 30 = \frac{AC}{10}$ Dep on at least M1 May be correctly marked on diagram or **M1** for $10^2 - 5^2$ Dep on at least M1	Reverse method using 8.66... **scores 0** 10^2 may be 100 and 5^2 may be 25
	b	i	$\frac{1}{2}\times\frac{1}{2}\times 10 \times 8.66[0..]$ oe 21.65[...]	M1 A1		Reverse method using 21.7 **scores 0** May be in stages
		ii	260	2	**M1** for 12×21.7 or **B1** for 259.8 to 260.4	Award **M1** for alternative complete methods

OCR Tuesday 6 November 2018 – Morning (Calculator) Foundation Tier

4.

20			28.8	**3**	**M2** for $\sqrt{30^2 - 8.4^2}$ or **M1** for $x^2 + 8.4^2 = 30^2$ oe	Allow answer of 29 after M2 scored

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5.

16			18	**3**	**M2** for $\sqrt{18.75^2 - 5.25^2}$ or $\sqrt{324}$ or **M1** for $x^2 + 5.25^2 = 18.75^2$ oe	See AG

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6.

19			38.7	**6**	**B3** for 50 for *DE* or *CF* nfww Or **M1** for $62.5^2 - 37.5^2$ **M1** for $\sqrt{62.5^2 \pm 37.5^2}$ And B3 FT for $\sin^{-1}\frac{their50}{80}$ correctly evaluated or **M2 FT for** ft for $\sin^{-1}\frac{their50}{80}$ or **M1 FT** for $\sin[x] = \frac{their50}{80}$	Allow 39 May be in correct place on diagram 2500 implies **M1**

Pearson Edexcel –Sample Papers - Paper 2 (Calculator) Foundation Tier

7.

28		9.54	P1	$10^2 - 5^2$ (=75)
			P1	"75" + 4^2 (=91)
			P1	$\sqrt{(10^2 - 5^2 + 4^2)}$
			A1	9.53 – 9.54

OCR Thursday 8 June 2017 – Morning (Non - Calculator) Foundation Tier

8.

21	**(a)**		$13^2 - 12^2$ or 169 - 144	**M1**	Or $5^2 + 12^2$ or 25 + 144	5^2+12^2 seen with 13^2+12^2 scores M0 May be seen in stages eg 5 x 5 =25 12 x 12 = 144 25 + 144 =
			$\sqrt{13^2 - 12^2}$ **soi**	**M1 dep**	or $\sqrt{5^2 + 12^2}$ **soi**	For second M1 must see √ symbol $\sqrt{13^2 + 12^2}$ scores M0
			Two shortest sides in both triangles are 5 [cm] and 12 [cm]	**A1**	or 5[cm] side clearly labelled on triangle P **and** 13[cm] clearly labelled on triangle Q	
	(b)		[All] the sides are the same length	**1**	Accept SAS **or** RHS **or** SSS **soi**	**See Appendix B**

AQA Monday 8 June 2020 – Morning (Calculator) Foundation Tier

9.

Q	Answer	Mark	Comments
24	32^2 and 60^2 or 1024 and 3600 or 4624	M1	
	$\sqrt{32^2 + 60^2}$ or $\sqrt{1024 + 3600}$ or $\sqrt{4624}$	M1dep	
	68	A1	
	Additional Guidance		
	Answer only 68		M1M1A1
	68 = $2\sqrt{17}$ incorrect further working		M1M1A0
	68 from scale drawing		M0M0A0
	68 from trigonometry		M0M0A0

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10.

19	**Alternative method 1**		
	$7.2^2 + 9.6^2$ (= 51.84 + 92.16) = 144 and $\sqrt{144} = 12$ or $12^2 = 144$	B2	B1 7.2^2 and 9.6^2 oe
	Alternative method 2		
	$12^2 - 7.2^2$ (= 144 – 51.84) = 92.16 and $\sqrt{92.16} = 9.6$ or $9.6^2 = 92.16$	B2	B1 12^2 and 7.2^2 oe
	Alternative method 3		
	$12^2 - 9.6^2$ (= 144 – 92.16) = 51.84 and $\sqrt{51.84} = 7.2$ or $7.2^2 = 51.84$	B2	B1 12^2 and 9.6^2 oe
	Alternative method 4		
	$\sqrt{7.2^2 + 9.6^2} = 12$ or $\sqrt{12^2 - 7.2^2} = 9.6$ or $\sqrt{12^2 - 9.6^2} = 7.2$	B2	condone $7.2^2 + 9.6^2 = 12^2$ or $12^2 - 7.2^2 = 9.6^2$ or $12^2 - 9.6^2 = 7.2^2$ B1 any two of 7.2^2, 9.6^2 and 12^2 oe
	Additional Guidance		
	$7.2^2 + 9.6^2 = 144$, $x^2 = 144$, $x = 12$		B2
	Do not accept $144 \div 12 = 12$ for $\sqrt{144} = 12$		
	Do not accept incorrect statements for B2 eg $7.2^2 + 9.6^2 = \sqrt{144} = 12$		B1
	Do not accept scale drawing		
	For eg 12^2 accept 12 × 12		

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11.

22	8^2 and 3^2 seen or 8 × 8 and 3 × 3 seen or 64 and 9 seen or 55	M1	M2 for $\sin^{-1}\left(\frac{3}{8}\right)$ = 22.(...) **and** 8 cos (their 22.(...)) or $\cos^{-1}\left(\frac{3}{8}\right)$ = 67.(...) or 68 **and** 8 sin (their 67.(...))
	$\sqrt{8^2 - 3^2}$ or $\sqrt{64 - 9}$ or $\sqrt{55}$	M1dep	
	[7.4, 7.42]	A1	
	Additional Guidance		
	$\sqrt{8^2 + 3^2}$ or $\sqrt{64 + 9}$ or $8^2 + 3^2$ or 64 + 9		M1M0depA0
	Only $\sqrt{73}$ or only 73 or only 8.5...		M0
	If trigonometry used it must be a fully correct method that would lead to the correct value of x		
	Partial method using trigonometry		M0
	Ignore units given		
	8 cm^2 is not 8^2 unless recovered		
	Correct answer in range seen, ignore further work if truncates or rounds		M2A1
	$8^2 = 16$ and $3^2 = 6$, $\sqrt{16 - 6}$		M1M1depA0
	Scale drawing with answer in range [7.4, 7.42]		M2A1
	Scale drawing with answer **not** in range [7.4, 7.42]		M0