teachably

GCSE Mathematics

Pythagoras' Theorem

Mark Scheme - GCSE Maths Practice

M = method mark, A = accuracy mark (dependent on the preceding M mark), B = independent mark.

Edexcel-style questions

Q1 Grade 5 Edexcel style — Total: 3

Part	Mark scheme	Marks
(a)	$6^2 + 8^2 = 100$	M1
(a)	$x = \sqrt{100}$	M1
(a)	x = 10 cm	A1

Q2 Grade 5 Edexcel style — Total: 3

Part	Mark scheme	Marks
(a)	$13^2 - 5^2 = 144$	M1
(a)	$x = \sqrt{144}$	M1
(a)	x = 12 cm	A1

Q3 Grade 6 Edexcel style — Total: 3

Part	Mark scheme	Marks
(a)	$9^2 + 12^2 = 81 + 144 = 225$	M1
(a)	$15^2 = 225$	M1
(a)	since $9^2 + 12^2 = 15^2$, the triangle IS right-angled	A1

Q4 Grade 6 Edexcel style — Total: 3

Part	Mark scheme	Marks
(a)	$13^2 - 5^2 = 144$	M1
(a)	$h = \sqrt{144}$	M1
(a)	h = 12 m	A1

Q5 Grade 7 Edexcel style — Total: 2

Part	Mark scheme	Marks
(a)	$height^2 = 13^2 - 5^2 = 144$, so height = $\sqrt{144}$ = 12 cm	M1
(a)	area = ½ × 10 × 12 = 60 cm²	A1

AQA-style questions

Q6 Grade 5 AQA style

Total: 3

Part	Mark scheme	Marks
(a)	$5^2 + 12^2 = 169$	M1
(a)	$x = \sqrt{169}$	M1
(a)	x = 13 cm	A1

Q7 Grade 6 AQA style

Total: 3

Part	Mark scheme	Marks
(a)	$17^2 - 8^2 = 225$	M1
(a)	$x = \sqrt{225}$	M1
(a)	x = 15 cm	A1

Q8 Grade 6 AQA style

Total: 3

Part	Mark scheme	Marks
(a)	$7^2 + 8^2 = 49 + 64 = 113$	M1
(a)	$12^2 = 144$	M1
(a)	since $113 \neq 144$, the triangle is NOT right-angled	A1

Q9 Grade 6 AQA style

Total: 3

Part	Mark scheme	Marks
(a)	$7^2 + 24^2 = 625$	M1
(a)	$d = \sqrt{625}$	M1
(a)	d = 25 m	A1

Q10 Grade 7 AQA style

Total: 3

Part	Mark scheme	Marks
(a)	initial height = $\sqrt{10^2 - 6^2} = \sqrt{64}$ = 8 m	M1
(a)	new height = $\sqrt{10^2 - 8^2} = \sqrt{36}$ = 6 m	M1
(a)	the ladder slides down by 8 - 6 = 2 m	A1

OCR-style questions

Q11 Grade 5 OCR style

Total: 3

Part	Mark scheme	Marks
(a)	$9^2 + 12^2 = 225$	M1
(a)	$x = \sqrt{225}$	M1
(a)	x = 15 cm	A1

Q12 Grade 5 OCR style

Total: 3

Part	Mark scheme	Marks
(a)	$10^2 - 6^2 = 64$	M1
(a)	$x = \sqrt{64}$	M1
(a)	x = 8 cm	A1

Q13 Grade 6 OCR style

Total: 3

Part	Mark scheme	Marks
(a)	$10^2 + 24^2 = 100 + 576 = 676$	M1
(a)	$26^2 = 676$	M1
(a)	since $10^2 + 24^2 = 26^2$, the triangle IS right-angled	A1

Q14 Grade 6 OCR style

Total: 3

Part	Mark scheme	Marks
(a)	horizontal distance = 7 - 1 = 6, vertical distance = 10 - 2 = 8	M1
(a)	distance = $\sqrt{6^2 + 8^2} = \sqrt{100}$	M1
(a)	distance = 10 units	A1

Q15 Grade 7 OCR style

Total: 3

Part	Mark scheme	Marks
(a)	AB = $\sqrt{3^2 + 4^2} = \sqrt{25}$ = 5, BC = $\sqrt{4^2 + 3^2} = \sqrt{25}$ = 5, AC = $\sqrt{7^2 + 1^2} = \sqrt{50}$	M1
(a)	$AB^2 + BC^2 = 25 + 25 = 50$, and $AC^2 = 50$	M1
(a)	since $AB^2 + BC^2 = AC^2$, the triangle DOES have a right angle at B	A1

Teachably-style questions

Q16 Grade 5 Teachably style — Total: 3

Part	Mark scheme	Marks
(a)	$7^2 + 24^2 = 625$	M1
(a)	$x = \sqrt{625}$	M1
(a)	x = 25 cm	A1

Q17 Grade 6 Teachably style — Total: 3

Part	Mark scheme	Marks
(a)	$25^2 - 20^2 = 225$	M1
(a)	$x = \sqrt{225}$	M1
(a)	x = 15 cm	A1

Q18 Grade 6 Teachably style — Total: 3

Part	Mark scheme	Marks
(a)	$6^2 + 7^2 = 36 + 49 = 85$	M1
(a)	$9^2 = 81$	M1
(a)	since 85 ≠ 81, the triangle is NOT right-angled	A1

Q19 Grade 7 Teachably style — Total: 3

Part	Mark scheme	Marks
(a)	$6^2 + 6^2 = 72$	M1
(a)	$d = \sqrt{72} = \sqrt{36 \times 2}$	M1
(a)	$d = 6\sqrt{2}$ cm	A1

Q20 Grade 7 Teachably style — Total: 2

Part	Mark scheme	Marks
(a)	$h^2 = (\sqrt{8})^2 + (\sqrt{28})^2 = 8 + 28 = 36$	M1
(a)	$h = \sqrt{36} = 6$ cm	A1

END OF PAPER