

# Algebra: Quadratics, Rearranging Formulae and Identities

## Non-Calculator 20 minute test 2

Q	Answer	Mark	Comments
1	$d - 12 = 3c$	M1	Or $\frac{d}{3} = c + 4$
	$c = \frac{d - 12}{3}$	A1	
2	$40x^8y^6$	B2	All three terms correct B1 Any two terms correct, where n is any number e.g. $40x^ny^6$ or $40x^8y^n$
3	$10a^2$ $17a^2 + b^2 - 10a^2$ $= 7a^2 + b^2$ $7a^2 + b^2 - 6a^2 = a^2 + b^2$	B1 M1 A1 B1	
4(a)	$(x \pm 1)(x \pm 7)$	M1	Factorises using the correct numbers, ignore signs.
	$(x + 1)(x - 7)$	A1	
5(a)	$y^2 - 9y - 5y + 45$	M1	Attempt to expand the brackets with at least four terms. Allow one error.
	$y^2 - 14y + 45$	A1	
5(b)	$\sqrt{2}\sqrt{2} - 9\sqrt{2} - 5\sqrt{2} + 45$ or $(\sqrt{2})^2 - 9\sqrt{2} - 5\sqrt{2} + 45$ or $2 - 9\sqrt{2} - 5\sqrt{2} + 45$	M1	Attempt to expand the brackets with at least four terms. ft terms from (a)
	$47 - 14\sqrt{2}$	A1	
6	$T = 12 \times 30 + 5$	M1	Attempt to substitute $x = 12$
	365 minutes	A1	oe e.g. 6 hours and 5 minutes

Q	Answer	Mark	Comments
7	$x^2 + y^2 = h^2$	M1	Correctly rearranges to make $h^2$ the subject
	$\sqrt{x^2 + y^2} = h$	A1	Square roots. Ignore $\pm$ roots
8	$(3x^2 - 3x + 5x - 5) - (2x^2 - 2x + 3x - 3)$	M1	Expands either set of brackets to give four terms correctly in either. Allow one error.
	$(3x^2 + 2x - 5) - (2x^2 + x - 3)$	A1	All terms correct
	$x^2 + x - 2 = (x + 2)(x - 1)$	A1	Simplifies expression
8 alt	$(x - 1)[(3x + 5) - (2x + 3)]$	M1 A1	Factor of $x = 1$ Square bracket correct
	$(x - 1)(x + 2)$	A1	Simplifies the second bracket