Algebra Past Paper Answers GCSE Edexcel – Non Calculator

1.

(a)	6 or –6	M1	for $12^2 + 2 \times -3 \times 18 \ (= 36)$	Terms may be partially evaluated.
		A1	for 6 or –6, accept ± 6	Only one value is required for full marks
(b)	$s = \dfrac{v^2 - u^2}{2a}$	M1	for subtracting u^2 from both sides or dividing all terms by $2a$ as the first step	Must see this step carried out, not just the intention shown
		A1	$s = \dfrac{v^2 - u^2}{2a}$ oe	

2.

(a)	$\dfrac{1}{5(x-1)}$	B1	for $\dfrac{1}{5(x-1)}$ or $\dfrac{1}{5x-5}$
(b)	$2(5+y)(5-y)$	M1	for partial factorisation, eg $2(25 - y^2)$ oe or $(10 + 2y)(5 - y)$ oe or $(5+y)(10 - 2y)$ oe or $-2(y^2 - 25)$ oe
		A1	for $2(5+y)(5-y)$ or $-2(5+y)(y-5)$

3.

ion	Answer	Mark	Mark scheme	Additional guidance
(a)	$(a-b)(a+b)$	B1	cao	Accept reversed brackets
(b)	$12(x^2 + 1)$	M1	for using 'a' $= x^2 + 4$ and 'b' $= x^2 - 2$ **OR** multiplying out both brackets, at least one fully correct	Correct 4 terms if not simplified or 3 terms if simplified
		M1	(dep) for a correct expression for ('a' + 'b')('a' – 'b') with no additional brackets, simplified or unsimplified eg $(x^2 + 4 + x^2 - 2)(x^2 + 4 - x^2 + 2)$ **or** $(2x^2 + 2) \times 6$ **OR** ft for a correct expression without brackets, simplified or unsimplified eg $x^4 + 8x^2 + 16 - x^4 + 4x^2 - 4$	
		A1	for $12(x^2 + 1)$ **or** $12x^2 + 12$ oe	

4.

$\dfrac{3x+1}{2x}$	M1	for $(3x+1)(x-3)$ **or** $2x(x-3)$	Accept $(2x+0)$ for the first two marks but not for the final answer
	A1	for $(3x+1)(x-3)$ **and** $2x(x-3)$	
	A1	$\dfrac{3x+1}{2x}$ oe	

5.

| 0.246, $0.\dot{2}4\dot{6}$
$0.2\dot{4}\dot{6}$, $0.24\dot{6}$ | M1 | for correct use of recurring symbol eg $0.2\dot{4}\dot{6} = 0.24646\ldots$ **or** 3 terms in the correct relative position |
| | A1 | cao |

6.

Working	Answer	Mark	Notes
	$y = \dfrac{x(k+1)}{k-1}$	M1	$y+x = k(y-x)$ **or** $\dfrac{y+x}{y-x} = k$ oe
$ky-y=x+kx$ $y(k-1)=x(1+k)$		M1	For isolating x and y on opposite sides eg $ky - y = x + kx$
		A1	Completing correct algebraic reasoning to reach conclusion

7.

$x^3+6x^2+11x+6$	M1	for method to find the product of any two linear expressions (3 correct terms) e.g. $x^2+x+2x+2$ or $x^2+2x+3x+6$ or $x^2+x+3x+3$
	M1	for method of multiplying out remaining products, half of which are correct (ft their first product) e.g. $x^3+x^2+2x+3x^2+2x+3x+6x+6$
	A1	cao

8.

Answer	Notes
$3x$	M1 Factorising numerator and denominator of first fraction $\dfrac{3(x+2)}{(x-5)(x+2)}$ $\left(=\dfrac{3}{(x-5)}\right)$
	M1 Factorising denominator of second fraction $\dfrac{x+5}{x(x+5)(x-5)}$ $\left(=\dfrac{1}{x(x-5)}\right)$
	M1 Multiplication by reciprocal $\dfrac{3(x+2)}{(x-5)(x+2)} \times \dfrac{x(x+5)(x-5)}{(x+5)}$
	A1 Completing algebra to reach $3x$

9.

Answer	Notes
$3 \pm \sqrt{17}$	M1 For $(x-3)^2 - 9 - 8 \ (=0)$ or $(x=) \dfrac{-(-6) \pm \sqrt{(-6)^2 - 4(1)(-8)}}{2(1)}$ allow sign error for b M1 For $x - 3 = \pm \sqrt{17}$ or $x = \dfrac{6 \pm \sqrt{68}}{2}$ A1 cao

10.

Working	Answer	Notes	
	$x = 21, \ y = 50$	P1	process to start solving problem eg. form an appropriate equation
		P1	complete process to isolate terms in x
		A1	for $x = 21$
		P1	complete process to find second variable
		A1	$y = 50$

11.

Answer	Notes
$a = \dfrac{7 - 3r}{r - 2}$	M1 Remove fraction and expand brackets M1 Isolate terms in a A1