2.14 Introduction to Factorising Quadratics: 30-minute Pack

Calculators not allowed · about 30 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Factorise fully: $9x^2 - 25$

(3)

2 Expand and simplify $(n - 6)^2$.

(3)

3 Expand and simplify $(2p + 5)(p + 7)$.

(3)

4 Expand and simplify $(t + 8)(t - 8)$.

(2)

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5 Show that $t^2 + 8t + 7$ can be written as $(t + 1)(t + 7)$.

(3)

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6 Factorise $n^2 - 25$.

(2)

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7 Factorise: $x^2 - 7x + 12$

(1)

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8 Given that $(x + 3)(x + 4) = x^2 + bx + c$, state the values of b and c.

(2)

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9 Factorise fully and solve $x^2 - 4x - 45 = 0$

(3)

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10 Expand $(x + 6)(x - 2)$ to form a quadratic. Then find all values of x such that this quadratic equals 9.

(3)

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Mark scheme · 2.14 Introduction to Factorising Quadratics: 30-minute Pack

Question 1

Recognise as difference of squares $9x^2 - 25 = (3x)^2 - 5^2$	M1
Correct factorisation $(3x - 5)(3x + 5)$ cao	A1
Both linear factors given in correct order or equivalent	B1

Answer: **$(3x - 5)(3x + 5)$**

Question 2

at least three of the four products correct	M1
all four products correct	M1
$n^2 - 12n + 36$ cao	A1

Answer: **$n^2 - 12n + 36$**

Question 3

at least three of the four products correct	M1
all four products correct	M1
$2p^2 + 19p + 35$ cao	A1

Answer: **$2p^2 + 19p + 35$**

Question 4

all products attempted, at least three correct	M1
$t^2 - 64$ cao	A1

Answer: **$t^2 - 64$**

Question 5

expands $(t + 1)(t + 7)$ with at least three terms correct	M1
$t^2 + t + 7t + 7$ shown	M1
$t^2 + 8t + 7$ shown (with $t + 7t = 8t$)	A1

Answer: **$t^2 + 8t + 7$ (shown)**

Question 6

a correct factor taken out or a correct bracket	M1
$(n + 5)(n - 5)$ oe cao	A1

Answer: **$(n + 5)(n - 5)$**

Question 7

Correct factorisation $(x - 3)(x - 4)$ cao	B1

Answer: **$(x - 3)(x - 4)$**

Question 8

Multiply out to get $x^2 + 7x + 12$ or equivalent	M1
$b = 7$ and $c = 12$ cao	A1

Answer: **$b = 7, c = 12$**

Question 9

correct pair of factors of -45 that sum to -4 identified	M1
$(x - 9)(x + 5)$ cao	A1
$x = 9$ and $x = -5$	B1

Answer: **$(x - 9)(x + 5)$; $x = 9$ or $x = -5$**

Question 10

expands to $x^2 + 4x - 12$	M1
sets up and factorises $x^2 + 4x - 21 = 0$ as $(x + 7)(x - 3) = 0$	M1
$x = -7$ and $x = 3$	A1

Answer: **$x^2 + 4x - 12$; $x = -7$ or $x = 3$**

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