A64 (H) Rearranging Formulae - Factorising

OCR

Edexcel

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17 Make a the subject of $\quad a + 3 = \dfrac{2a + 7}{r}$

.....

(Total for Question 17 is 3 marks)

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17 Make a the subject of $a + 3 = \dfrac{2a + 7}{r}$

$r(a+3) = 2a + 7$

$ra + 3r = 2a + 7$ ... multiplied bracket.

$3r - 7 = 2a - ra$ .... got my a's on the same side.

$3r - 7 = a(2 - r)$

$\dfrac{3r-7}{2-r} = a$ ✓

(Total for Question 17 is 3 marks)

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18 Make m the subject of

$$f = \frac{4 - 3m}{5 + m}$$

.....

(Total for Question 18 is 4 marks)

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18 Make m the subject of

$$f = \frac{4 - 3m}{5 + m}$$

$f(5+m) = 4-3m$ ... mult bracket

$5f + mf = 4 - 3m$ .... ms on same side

$mf + 3m = 4 - 5f$

$m(f+3) = 4-5f$

$$m = \frac{4-5f}{f+3}$$

(Total for Question 18 is 4 marks)

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16 Make t the subject of the formula $k = \dfrac{2(t+3)}{t-3}$

.....

(Total for Question 16 is 4 marks)

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16 Make t the subject of the formula $k = \dfrac{2(t+3)}{t-3}$

$t =$

$k(t-3) = 2(t+3)$

$kt - 3k = 2t + 6$

$kt - 2t = 6 + 3k$

$t(k-2) = 6+3k$

$t = \dfrac{6+3k}{k-2}$ ✓

(Total for Question 16 is 4 marks)

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(b) Make v the subject of the formula $w = \dfrac{15(t - 2v)}{v}$

.....

(3)

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(b) Make v the subject of the formula $w = \dfrac{15(t - 2v)}{v}$

$wv = 15t - 30v$

$wv + 30v = 15t$

$v(w + 30) = 15t$

$v = \dfrac{15t}{w + 30}$

(3)

14 The ratio $(y + x) : (y - x)$ is equivalent to $k : 1$

Show that $y = \dfrac{x(k + 1)}{k - 1}$

(Total for Question 14 is 3 marks)

14 The ratio $(y + x) : (y - x)$ is equivalent to $k : 1$

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Show that $y = \dfrac{x(k+1)}{k-1}$

$(y+x):(y-x)$

$k : 1$

$\dfrac{(y+x)}{(y-x)} : \dfrac{(y-x)}{(y-x)}$

$\dfrac{y+x}{y-x} : 1$

$k = \dfrac{y+x}{y-x}$

$k(y-x) = y+x$

$ky - kx = y + x$

$ky - y = x + kx$

$y(k-1) = x(1+k)$

$y = \dfrac{x(1+k)}{k-1}$ ✓

(Total for Question 14 is 3 marks)

AQA

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26

A64

A66

$f(x) = \dfrac{2x+3}{x-4}$

Work out $f^{-1}(x)$

[4 marks]

Answer _____

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26 $f(x) = \dfrac{2x+3}{x-4}$

A64

A66

Work out $f^{-1}(x)$

[4 marks]

Pretend

$f(x) = 2x + 1$

$f^{-1}(x) = \dfrac{x-1}{2}$ ✓

$y = 2x + 1$

$x \to (\times 2) \to (+1) \to y$

$x = \dfrac{y-1}{2}$

$y = \dfrac{2x+3}{x-4}$

$y(x-4) = 2x+3$

$yx - 4y = 2x + 3$

$yx - 2x = 4y + 3$

$x(y-2) = 4y+3$

$x = \dfrac{4y+3}{y-2}$

Answer $\dfrac{4x+3}{x-2}$