



EXAM PAPERS PRACTICE

GCSE OCR Math J560

Rearranging

formulae

Answers

*"We will help you to
achieve A Star "*



Answer 1

Make t the subject of the formula $w = 3t + 11$

$$w = 3t + 11$$

-11 -11

$$\frac{w-11}{3} = \frac{3t}{3}$$

$$\frac{w-11}{3} = t$$

$$\underline{\underline{t = \frac{w-11}{3}}}$$



Answer 2

Make p the subject of $p + 4q = 3p + 5$

$$p - 3p = 5 - 4q$$

$$-2p = 5 - 4q$$

$$2p = 4q - 5$$

$$p = 2q - 5/2$$

Answer 3

Make y the subject of $3(y + 2x - 1) = x + 5y$

Expand:

$$3y + 6x - 3 = x + 5y$$

$$6x - 3 - x = 5y - 3y$$

$$5x - 3 = 2y$$

$$\frac{5x - 3}{2} = y$$

$$y = \frac{5x - 3}{2}$$



Answer 4

Make t the subject of the formula $y = \frac{t}{3} - 2a$

$$y + 2a = \frac{t}{3} - 2a + 2a$$

$$3 \times (y + 2a) = \frac{t}{\cancel{3}} \times \cancel{3}$$

$$\underline{\underline{3(y + 2a) = t}}$$

$$\underline{\underline{t = 3(y + 2a)}}$$



Answer 5

Make p the subject of the formula

$$y = 3p^2 - 4$$

$$+4 \quad +4$$

$$\frac{y+4}{3} = \frac{3p^2}{3}$$

$$\sqrt{\frac{y+4}{3}} = \sqrt{p^2}$$

$$\sqrt{\frac{y+4}{3}} = p$$



Answer 6

Make m the subject of

$$g - 3m = am + 5$$

LET

$$g - 3m = am + 5$$

$+3m$ $+3m$

"CROSS CROBLET
FIND ANSWER"

$$g - 5 = am + 3m$$

$$g - 5 = am + 3m$$

FIND

$$\frac{g-5}{a+3} = \frac{m(a+3)}{a+3}$$

D

$$\frac{g-5}{a+3} = m$$

ANSWER



Answer 7

Make m the subject of the formula $v = \sqrt{\frac{2E}{m}}$

SQUARE BOTH SIDES: $m \times v^2 = \frac{2E}{m} \times m$

GROUP: $\frac{mv^2}{v^2} = \frac{2E}{v^2}$

D: $m = \frac{2E}{v^2}$



Answer 8

Make t the subject of the formula $2(d - t) = 4t + 7$

GR03

$$\begin{aligned} 2d - 2t &= 4t + 7 \\ +2t & \quad +2t \\ 2d &= 6t + 7 \\ -7 & \quad -7 \\ \frac{2d-7}{6} &= \frac{6t}{6} \\ t &= \frac{2d-7}{6} \end{aligned}$$

(you might get

$$t = \frac{7-2d}{-6} \quad \checkmark)$$



Answer 9

Make y the subject of the formula

$$t = \frac{2-3y}{y+2}$$

CROF: $(y+2)t = \frac{2-3y}{y+2} \times (y+2)$

CROF CROB LET
FIND ANSWER

CROB: $t(y+2) = 2-3y$

LET: $ty + 2t = 2 - 3y$

$ty + 3y + 2t = 2$

$ty + 3y = 2 - 2t$

FIN: $y(t+3) = \frac{2-2t}{(t+3)}$

D: $y = \frac{2-2t}{t+3}$

ANSWER:



Answer 10

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

GROF $v \times w = \frac{15(t - 2v)}{v}$

GROB $vw = 15(t - 2v)$

LET $vw + 30v = 15t$

FIN $\frac{v(w + 30)}{(w + 30)} = \frac{15t}{(w + 30)}$

D $v = \frac{15t}{w + 30}$

GROF GROB LET
FIND ANSWER!

ANSWER!



Answer 11

$$m = \sqrt{\frac{k^3 + 1}{4}}$$

Make k the subject of the formula.

$$m = \sqrt{\frac{k^3 + 1}{4}}$$

SQUARING: $4 \times m^2 = \frac{k^3 + 1}{4} \times 4$

GRAB: $4m^2 = k^3 + 1$

$$4m^2 - 1 = k^3$$

CUBE ROOT: $\sqrt[3]{4m^2 - 1} = k$

$$\underline{\underline{k = \sqrt[3]{4m^2 - 1}}}$$



Answer 12

Make a the subject of the formula $p = \frac{3a+5}{4-a}$

GROF GROB LET
FIND ANSWER

GROF: $(4-a) \times p = \frac{3a+5}{4-a} \times (4-a)$

GROB: $p(4-a) = 3a+5$

LET: $4p - pa = 3a + 5$
 $+pa \quad +pa$

$$4p = 3a + pa + 5$$

$-5 \qquad -5$

$$4p - 5 = 3a + pa$$

FIN: $\frac{4p-5}{3+p} = \frac{a(3+p)}{3+p}$

D: $\frac{4p-5}{3+p} = a$ ANSWER!



Answer 13

Make m the subject of

$$\frac{m}{v} - \frac{t}{b} = \frac{m-t}{R}$$

GROF GROB LET
FIND ANSWER

GROF

$$vR \times \frac{m}{v} - \frac{t \times vR}{b} = \frac{m-t}{R} \times vR$$

GROB

$$bRm - tvR = (m-t)vb$$

LET

$$bRm - tvR = mvb - tvb + tvR$$

$$bRm - mvb = mvb - tvb + tvR - mvb$$

$$bRm - mvb = tvR - tvb$$

FIND

$$m \frac{(bR - vb)}{(bR - vb)} = \frac{tvR - tvb}{(bR - vb)}$$

D

$$m = \frac{tvR - tvb}{bR - vb}$$

Answer!



Answer 14

Given that y is positive, make y the subject of $y = \sqrt{ay^2 + n}$

Show clear algebraic working.

Square both sides

$$y^2 = ay^2 + n$$

Bring both onto one side

$$y^2 - ay^2 = n$$

Factorise

$$y^2(1-a) = n$$

$$y^2 = \frac{n}{1-a}$$

Square root

$$y = \sqrt{\frac{n}{1-a}}$$

$$y = \sqrt{\frac{n}{1-a}}$$



Answer 15

Make t the subject of the formula $m = \frac{t + 1}{t - 3}$

Multiply by $(t-3)$
 $(t-3)m = t + 1$

Collect like terms and factorise
 $mt - 3m = t + 1$

$$mt - t = 3m + 1$$

$$t(m-1) = 3m + 1$$

$$t = \frac{3m + 1}{m-1}$$

$$t = \frac{3m + 1}{m-1}$$
