DAY 4 – More Rearranging Formulas

Solve for x

1. $ax + 3b = 2f$

$ax = 2f - 3b$

$x = \dfrac{2f - 3b}{a}$

2. $\dfrac{x}{5} - 7 = 2q$

$\dfrac{x}{5} = 2q + 7$

$x = 5(2q + 7)$

3. $7 \cdot \dfrac{x}{6} - \dfrac{x \cdot 6}{7 \cdot 6} = ab$

$\dfrac{7x - 6x}{42} = ab$

$x = 42ab$

4. $\dfrac{(x+b)}{4} = c$

$1(x+b) = 4c$

$x = 4c - b$

5. $\dfrac{(3ax+2b)}{c} = \dfrac{4d}{1}$

$1(3ax + 2b) = 4cd$

$3ax = 4cd - 2b$

$x = \dfrac{4cd - 2b}{3a}$

6. $3ax + b = c$

$3ax = c - b$

$x = \dfrac{c - b}{3a}$

7. (BONUS) **Solve for u.**

$\dfrac{1}{u} + \dfrac{1}{v} = \dfrac{1}{f}$

$\dfrac{1}{u} = \dfrac{1}{f} - \dfrac{1}{v}$

$\dfrac{1}{u} = \dfrac{v - f}{fv}$

$u = \dfrac{fv}{v - f}$

8. Solve for s.

$A = s^2$

$\sqrt{A} = s$

9. Solve for h.

$V = \pi r^2 h$

$\dfrac{V}{\pi r^2} = h$

10. Solve for m.

$T = 4\sqrt{m}$

$\dfrac{T}{4} = \sqrt{m}$

$\dfrac{T^2}{16} = m$

11. Solve for d.

$F = G\dfrac{mn}{d^2}$

$d^2 F = Gmn$

$d^2 = \dfrac{Gmn}{F}$

$d = \sqrt{\dfrac{Gmn}{F}}$

12. Solve for y.

$ax + by = c$

$by = c - ax$

$y = \dfrac{c - ax}{b}$

13. Solve for b_1.

$A = \dfrac{1}{2}h(b_1 + b_2)$

$2A = h(b_1 + b_2)$

$2A = hb_1 + hb_2$

$2A - hb_2 = hb_1$

$\dfrac{2A - hb_2}{h} = b_1$

14. Solve for m.

$K = \dfrac{1}{2}mv^2$

$2K = mv^2$

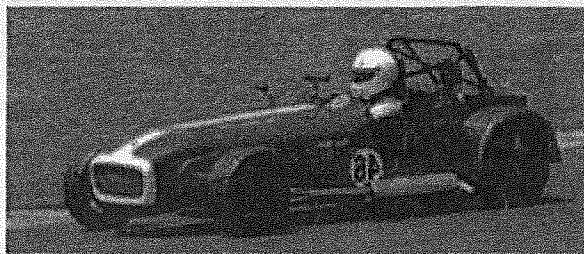$\dfrac{2k}{v^2} = m$

15. Solve for v.

$K = \dfrac{1}{2}mv^2$

$2k = mv^2$

$\dfrac{2k}{m} = v^2$

$\sqrt{\dfrac{2k}{m}} = v$

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16.   The speed of a car after t seconds is given by
the formula $v = u + at$
where u is the starting speed and a is the
acceleration.

Rearrange this formula to make the subject:

a u b t

ⓐ $v - at = u$

ⓑ $v - u = at$

$\frac{v - u}{a} = t$

17.   In an electrical circuit, the formula relating power, P, to the current, I,
and resistance, R, is $P = I^2R$.

Rearrange this formula to make the subject a R b I

ⓐ $\frac{P}{I^2} = R$

ⓑ $\frac{P}{R} = I^2$

$\sqrt{\frac{P}{R}} = I$

18.   If a ball is thrown up in the air at a velocity of v, the height it reaches is

given by $h = \frac{v^2}{2g}$ where g is the acceleration due to gravity.

Rearrange this formula to make the subject v.

$2gh = v^2$

$\sqrt{2gh} = v$

19.
    A formula for converting temperatures is $C = \frac{5}{9}(F - 32)$

where C is the temperature in degrees Celsius, and F is the temperature in
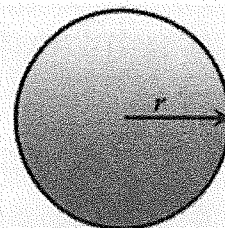degrees Fahrenheit.

Rearrange this formula to make the subject F.

$9C = 5F - 160$

$9C + 160 = 5F$

$\frac{9C + 160}{5} = F$

20.
    The volume of a sphere of radius r is given by the formula $V = \frac{4}{3}\pi r^3$

Rearrange this formula to make the subject r.

$3V = 4\pi r^3$

$\frac{3V}{4\pi} r^3$

$\sqrt[3]{\frac{3V}{4\pi}} = r$