DAY 3 - Rearranging Formulas

Solve for x

1. $y = x + a$

$y - a = x$

2. $y = \frac{x}{5}$

$5y = x$

3. $y = 2x + 7$

$y - 7 = 2x$

$\frac{1}{2}y - \frac{7}{2} = x$ or $\frac{y-7}{2} = x$

4. $y = 2x - a$

$y + a = 2x$

$\frac{1}{2}y + \frac{a}{2} = x$ or $\frac{y+a}{2} = x$

5. $2w = 3x$

$\frac{2}{3}w = x$

6. $ax - y = 2y$

$ax = 2y + y$

$x = \frac{3y}{a}$

7. $y = 7 - 2x$

$y - 7 = -2x$

$-\frac{1}{2}y + \frac{7}{2} = x$ or $\frac{y-7}{-2} = x$

8. $2(x + a) = y$

$2x + 2a = y$

$2x = y - 2a$

$x = \frac{y-2a}{2}$ or $x = \frac{1}{2}y - a$

9. $ax - y + z = b$

$ax = b + y - z$

$x = \frac{b+y-z}{a}$

10. $\frac{x}{a} = \frac{y}{z}$

$zx = ay$

$x = \frac{ay}{z}$

11. $\frac{x}{a} = \frac{(y+z)}{b}$

$bx = a(y+z)$

$x = \frac{a}{b}(y+z)$

12. $\frac{1}{3}x + 2y = 3z$

$\frac{1}{3}x = 3z - 2y$

$x = 3(3z - 2y)$

13. The equation $s = \frac{w - 10e}{t}$ models the speed in words per minute, s, at which someone types. The speed, s, is related to the number of words typed, w, the number of errors, e, and the time spent typing in minutes, t.

Alex types 525 words in 5 min, with 10 errors. What is Alex's typing speed?

$S = \frac{525 - 10(10)}{5}$

$= \frac{525 - 100}{5}$

$= \frac{425}{5}$

$= 85$

∴ his speed is 85 words/min

14. Use the equation for typing speed from question 13. Melanie's typing speed is 100 word/min. She types 800 words in 7 min. How many errors did Melanie make?

$100 = \frac{800 - 10e}{7}$

$700 = 800 - 10e$

$-100 = -10e$

$10 = e$

∴ she makes 10 errors

Solve for indicated letter

15. $y = mx + c$ solve for c

$y - mx = c$

16. $y = mx + c$ solve for m

$y - c = mx$

$\frac{y-c}{x} = m$

17. $2s = 2ut + at^2$ solve for a

$2s - 2ut = at^2$

$\frac{2s-2ut}{t^2} = a$

18. $A = 4\pi r^2$ solve for r

$\frac{A}{4\pi} = r^2$

$\sqrt{\frac{A}{4\pi}} = r$

19. $A = lw$, solve for w

$\frac{A}{l} = w$

20. $V = lwh$, solve for h

$\frac{V}{lw} = h$

21. $P = 2l + 2w$, solve for l

$P - 2w = 2l$

$\frac{P-2w}{2} = l$

22. $C = 2\pi r$, solve for r

$\frac{C}{2\pi} = r$

23. $A = \frac{bh}{2}$, solve for h

$2A = bh$

$\frac{2A}{b} = h$

24. $A = p + prt$, solve for t

$A - p = prt$

$\frac{A-p}{pr} = t$

25. $A = 2\pi r^2 + 2\pi rh$, solve for h

$A - 2\pi r^2 = 2\pi rh$

$\frac{A-2\pi r^2}{2\pi r} = h$

26. $V = \pi r^2 h$ solve for r

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

$\sqrt{\frac{V}{\pi h}} = r$

27. **The science teacher wrote three equations on a board that relate velocity, v, distance traveled, d, and the time to travel the distance, t, on the board.**

$v = \frac{d}{t}$ $\quad t = \frac{d}{v}$ $\quad d = vt$

Would you need to memorize all three equations or could you just memorize one? Explain your reasoning.

Memorize just one, rearrange to get others

① $v = \frac{d}{t}$) cross mult

③ $vt = \frac{d}{v}$) divide

② $v = \frac{d}{t}$