~~15~~

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(29) $PV = nRT$ for R

$$\frac{PV}{nT} = R$$

(30) $F = G\frac{mM}{r^2}$ for m

$$F = \frac{G \cdot M}{r^2} m$$

$$F\left(\frac{r^2}{GM}\right) = \left(\frac{r^2}{GM}\right)\left(\frac{GM}{r^2}\right) m$$

$$m = \frac{Fr^2}{GM}$$

(31) $P = 2\ell + 2w$ for w

$$P - 2\ell = 2w$$

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

(32) $\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2}$ for R_1

$$R_1 R_2 R\left(\frac{1}{R}\right) = R_1 R_2 R\left[\frac{1}{R_1} + \frac{1}{R_2}\right]$$

$$R_1 R_2 = R_2 R + R_1 R$$

$$\frac{R_1 R_2}{(R_2 + R_1)} = \frac{(R_2 + R_1)R}{(R_2 + R_1)}$$

$$\frac{R_1 R_2}{(R_2 + R_1)} = R$$

1.5
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(33) $\frac{ax+b}{cx+d} = 2$ for x

$(cx+d)\left[\frac{ax+b}{(cx+d)}\right] = 2(cx+d)$

$ax+b = 2cx+d$

$ax-2cx = d-b$

$x(a-2c) = d-b$

$$\boxed{x = \frac{d-b}{a-2c}}$$

(34) $a-2[b-3(c-x)] = 6$ for x

$a-2[b-3c+3x] = 6$

$a-2b+6c-6x = 6$

$a-2b+6c-6 = 6x$

$$\boxed{\frac{a-2b+6c-6}{6} = x}$$

(35) $a^2x+(a-1) = (a+1)x$ for x

$a^2x-(a+1)x = -(a-1)$

$\frac{x(a^2-(a+1))}{(a^2-(a+1))} = \frac{-(a-1)}{(a^2-(a+1))}$

$$\boxed{x = \frac{-a+1}{a^2-a-1}}$$

(36) $\frac{a+1}{b} = \frac{a-1}{b} + \frac{b+1}{a}$ for a

$ab\left(\frac{a+1}{b}\right) = ab\left(\frac{a-1}{b}\right) + ab\left(\frac{b+1}{a}\right)$

$a(a+1) = a(a-1) + b(b+1)$

$a^2+a = a^2-a+b^2+b$

$2a = b^2+b$

$$\boxed{a = \frac{b(b+1)}{2}}$$ (2)

1.5
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(37) $V = \frac{1}{3}\pi r^2 h$ for r

$V = \frac{\pi h}{3} r^2$

$\frac{3}{\pi h}(V) = \frac{3}{\pi h}\left(\frac{\pi h}{3}\right) r^2$

$r^2 = \frac{3V}{\pi h}$

$\boxed{r = \pm\sqrt{\frac{3V}{\pi h}}}$

(38) $F = G\frac{mM}{r^2}$ for r

$r^2 F = GmM$

$r^2 = \frac{GmM}{F}$

$r = \pm\sqrt{\frac{GmM}{F}}$

(39) $a^2 + b^2 = c^2$ for b

$b^2 = c^2 - a^2$

$\boxed{b = \pm\sqrt{c^2 - a^2}}$

(40) $A = P\left(1 + \frac{i}{100}\right)^2$ for i

$\pm\sqrt{\frac{A}{P}} = 1 + \frac{i}{100}$

$-1 \pm \sqrt{\frac{A}{P}} = \frac{i}{100}$

$\boxed{100\left(-1 \pm \sqrt{\frac{A}{P}}\right) = i}$

(41) $h = \frac{1}{2}gt^2 + V_0 t$; for t

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