PART 1

EX. 11

1. $ax + bx = c$ (SOLVE FOR x)

$(a+b)x = c$ ←

$\frac{(a+b)x}{(a+b)} = \frac{c}{(a+b)}$ ←

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

TRIG
↓
PEMDAS
←

2. $5 \sin x = 5$

(5: 1st, $\sin x$: 2nd)

$\frac{5 \cdot \sin x}{5} = \frac{5}{5}$ ←

$\sin x = 1$

$\sin^{-1}(\sin x) = \sin^{-1}(1)$ ←

$\boxed{x = 90^\circ}$

5. $y(y+1) - 2 = 0 \Rightarrow y \cdot y + y \cdot 1 - 2 = 0$

$y^2 + y - 2 = 0$

$a = 1 \quad b = 1 \quad c = -2$ ←

$y = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$= \boxed{\frac{-(1) \pm \sqrt{(1)^2 - 4(1)(-2)}}{2(1)}}$

$y = \frac{-1 \pm \sqrt{1+8}}{2}$

$y = \frac{-1+3}{2} = 1$

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

6. $3x^2 + x - 1 = 0$

$a = 3$
$b = 1$
$c = -1$ ←

$$x = \frac{-1 \pm \sqrt{1^2 - 4 \cdot 3 \cdot -1}}{2 \cdot 3}$$

$x = \frac{-1 + \sqrt{13}}{6} = 0.434$ $\quad x = \frac{-1 - \sqrt{13}}{6} = -0.768$

10. $10 \cdot \cos x - 1 = 0$
(2nd, 3rd, 1st)

TRIG
↓
PEMDAS ←

$10 \cos x - 1 + 1 = 0 + 1$ ←

$\frac{10 \cos x}{10} = \frac{1}{10}$ ←

$\cos x = 0.1$

$\cos^{-1}(\cos x) = \cos^{-1}(0.1)$ ←

$x = 84.3°$

EX. 12 PART 1

5. $x^2 + 2x + 1 = 0$

$a = 1$
$b = 2$
$c = 1$ } SHOW ←

$$x = \frac{-2 \pm \sqrt{2^2 - 4 \cdot 1 \cdot 1}}{2 \cdot 1}$$

$x = \frac{-2+0}{2}, \frac{-2-0}{2}$

$x = -1$ (DOUBLE ROOT)

6. $\cos y = 0.707$

$\cos^{-1}(\cos y) = \cos^{-1}(0.707)$ ←

$y = 45°$

7. $\tan y = 1$

$\tan^{-1}(\tan y) = \tan^{-1}(1)$ ←

$\boxed{y = 45^\circ}$

10. $4x^2 - x - 1 = 1$

$-1 \quad -1$

$4x^2 - x - 2 = 0$

$a = 4$

$b = -1$

$c = -2$

$$\boxed{x = \frac{-(-1) \pm \sqrt{(-1)^2 - 4(4)(-2)}}{2(4)}}$$

$$= \frac{1 \pm \sqrt{1 + 32}}{8}$$

$x = 0.843, -0.593$