

⑦ a) $2x + 2 = -8$
 $2x = -8 - 2$
 $2x = -10$
~~2x~~ $x = \frac{-10}{2} \Rightarrow x = -5$

b) $10x + 8 = -6 + 9x$
 $10x - 9x = -8 - 6$
 $x = -14$
 $x = -14$

⑧ a) $2x + 5 - x = 5 - 2x + 6$
 $2x - x + 5 = -2x + 6 + 5$
~~2~~ $5 = -2x + 11$ $x = \frac{6}{3}$
 $x + 2x = -5 + 11$ $x = 2$
 $3x = 6$

b) $-2 - x + 3 = -7x - 7 - 2x$
 $+1 - x = -9x - 7$
 $-x + 9x = -1 - 7$
 $8x = -8$
 $x = \frac{-8}{8} \Rightarrow x = -1$

$$\textcircled{9} \text{ a) } 1 + 2(x+2) = -3(1+x)$$

$$1 + 2x + 4 = -3 - 3x$$

$$5 + 2x = -3 - 3x$$

$$2x + 3x = -5 - 3$$

$$5x = -8$$

$$\Rightarrow x = -\frac{8}{5}$$

$$\text{b) } 2 + 3(1 - 2x) = 2(2 + 3x) - 3$$

$$2 + 3 - 6x = 4 + 6x - 3$$

$$5 - 6x = 1 + 6x$$

$$-6x - 6x = 1 - 5$$

$$-12x = -4$$

$$x = \frac{-4}{-12}$$

$$x = +\frac{1}{3} //$$

$\textcircled{10}$

$$\text{a) } x + 7 = 12x - 3 - 8x + 1$$

$$x + 7 = 4x - 2$$

$$x - 4x = -7 - 2$$

$$-3x = -9$$

$$x = \frac{-9}{-3} = +3$$

$$\boxed{x = 3}$$

$$(15) a) x^4 - 7x^2 + 12 = 0$$

$$\underline{\text{Use } x^2 = y}$$

$$y^2 - 7y + 12 = 0$$

$$y = \frac{-(-7) \pm \sqrt{(-7)^2 - 4 \cdot 1 \cdot 12}}{2 \cdot 1}$$

$$y = \frac{+7 \pm \sqrt{49 - 48}}{2}$$

$$y = \frac{7 \pm 1}{2} \rightarrow y_1 = 4$$
$$y_2 = 3$$

$$x^2 = y \Rightarrow x = \sqrt{y}$$

$$x = \sqrt{4} = \pm 2$$

$$x = \pm \sqrt{3} = \pm \sqrt{3}$$

$$S = \{ \cancel{-2, -\sqrt{3}, +\sqrt{3}, +2} \}$$

$$S = \{-2, -\sqrt{3}, +\sqrt{3}, +2\}$$