

①

i $x^6 \times x^8 \times x^2 \times x = x^{17}$

ii $(2x^2)^4 \times 3x^3 = 16x^8 \times 3x^3 = 48x^{11}$

iii $\frac{x^2 \times x^{10} \times x}{x^3} \times \frac{x^{13}}{x^3} = x^{10}$

iv $2\sqrt{x} \times 3\sqrt{x} = 6\sqrt{x^2} = 6x$

v $1 = x^0$

2

$$7x - 1 = 5x + 4$$

$$7x = 5x + 5$$

$$2x = +5$$

$$x = 5/2$$

$$x = 2.5$$

∴

$$\cancel{10(3x+2)} = 10(3x+2) = 7(-2x-1)$$

$$30x + 20 = -14x - 7$$

$$44x = -27$$

$$x = -27/44$$

$$x = -0.614$$

∴

$$\frac{3}{(2x+1)} = \frac{4}{(x-1)}$$

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

$$3x - 3 = 8x + 4$$

$$-5x = 7$$

$$x = -7/5$$

$$x = -1.4$$

✓

$$(5x+2)^2 = (x+3)(x+5)$$

$$25x^2 + 20x + 4 = x^2 + 3x + 5x + 15$$

$$24x^2 + 17x - 11 = 0$$

$$4 = 4x + 15$$

$$-11 = 4x$$

$$-11/4 = x$$

$$x = -2.75$$

(3)

$$i) \quad x^2 + 9x + 14 = 0$$

$$\begin{array}{l} (x+2) = 0 \\ \boxed{x = -2} \end{array} \quad \begin{array}{l} (x+7) = 0 \\ \boxed{x = -7} \end{array}$$

$$ii) \quad x^2 - 7x + 10 = 0$$

$$\begin{array}{l} (x-2) = 0 \\ \boxed{x = 2} \end{array} \quad \begin{array}{l} (x-5) = 0 \\ \boxed{x = 5} \end{array}$$

$$iii) \quad x^2 + 8x - 20 = 0$$

$$\begin{array}{l} (x+10) = 0 \\ \boxed{x = -10} \end{array} \quad \begin{array}{l} (x-2) = 0 \\ \boxed{x = 2} \end{array}$$

+/-

+10 -2

$$iv) \quad x^2 - 49$$

 $\sqrt{49}$

$$\begin{array}{l} (x+7) = 0 \\ \boxed{x = -7} \end{array} \quad \begin{array}{l} (x-7) = 0 \\ \boxed{x = 7} \end{array}$$

$$v) \quad 2x^2 - 3x - 20$$

$$(2x+5) \quad (x-4)$$

+/-

$$2x^2 + 5x - 8x - 20$$

10/2

4 5

$$2x + 5 = 0$$

$$x - 4 = 0$$

$$2x = -5$$

$$\boxed{x = 4}$$

$$5 + 2x - 4 =$$

$$x = -5/2$$

$$\boxed{x = -2.5}$$

$24x + 20y = 140$
 35
 4

$$17x^2 = -5x + 14$$

$$17x^2 + 5x = 14$$

$$17x^2 + 5x - 14 = 0$$

$$17x^2 + 5x - 14$$

A B C

$$x = \frac{-5 \pm \sqrt{5^2 - 4(17)(-14)}}{2 \times 17}$$

$$x = \frac{-5 \pm \sqrt{25 - 14 \times 238}}{2 \times 17}$$

$$x = \frac{-5 \pm \sqrt{977}}{2 \times 17}$$

$$x = \frac{-5 \pm 31.257}{34}$$

$$x = \frac{26.257}{34}$$

$$x = \frac{-36.257}{34}$$

$x = 0.772$
 $x = 1.066$

(5)

$$\begin{aligned} 6x + 5y &= 35 \\ 7x - 4y &= 31 \end{aligned}$$
$$\begin{aligned} 6x + 5y &= 35 \\ 30 + 5y &= 35 \\ 5y &= 5 \\ y &= 1 \end{aligned}$$
$$\begin{aligned} (7 \times 5) - (4 \times 1) &= 31 \\ 35 - 4 &= 31 \end{aligned}$$
$$\begin{aligned} 24x + 20y &= 140 \\ 35x - 20y &= 155 \end{aligned}$$
$$\begin{aligned} 59x &= 295 \\ x &= 295/59 \\ x &= 5 \end{aligned}$$

$$\begin{aligned} x &= 5 \\ y &= 1 \end{aligned}$$

