

$$\begin{array}{r} \textcircled{1} \quad x = 3y - 7 \\ 4x + 3y = 2 \\ \hline x - 3y = -7 \\ 4x + 3y = 2 \\ \hline 5x = -5 \\ x = -1 \end{array} \quad (-1, 2)$$

$$\begin{array}{r} -1 = 3y - 7 \\ 3y = 6 \\ y = 2 \end{array}$$

$$\begin{array}{r} \textcircled{2} \quad 3x + 4y = -5 \\ 2x - 3y = 8 \\ \hline 9x + 12y = -15 \\ 8x - 12y = 32 \\ \hline 17x = 17 \\ x = 1 \\ 3 + 4y = -5 \\ 4y = -8 \\ y = -2 \end{array} \quad (1, -2)$$

$$\begin{array}{r} \textcircled{3} \quad \frac{2x}{3} + \frac{y}{5} = 6 \\ \frac{x}{6} - \frac{y}{2} = -4 \\ \hline 10x + 3y = 90 \\ x - 3y = -24 \\ \hline 11x = 66 \\ x = 6 \end{array} \quad (6, 10)$$

$$\begin{array}{r} \frac{12}{3} + \frac{y}{5} = 6 \\ \frac{y}{5} = 2 \\ y = 10 \end{array}$$

$$\begin{array}{r} \textcircled{4} \quad y = 4x - 5 \\ 8x - 2y = 10 \\ -4x + y = -5 \\ 4x - y = 5 \\ \hline 0 = 0 \\ (-\infty, \infty) \end{array}$$

⑤

$$2x + 5y = 3$$

$$3x - 2y = 1$$

$$\underline{-6x - 15y = -9}$$

$$6x - 4y = 2$$

$$-19y = -7$$

$$y = \frac{7}{19}$$

$$2x + \frac{35}{19} = 3$$

$$2x = \frac{22}{19}$$

$$x = \frac{11}{19}$$

$$\left(\frac{11}{19}, \frac{7}{19}\right)$$

⑥

$$\frac{x}{12} - y = \frac{1}{4}$$

$$4x - 48y = 16$$

$$x - 12y = 3$$

$$\underline{4x - 48y = 4}$$

$$0 = -1$$

∅

⑦

$$2x - y + 2z = -8$$

$$x + 2y + 3z = 9$$

$$3x - y - 4z = 3$$

1+2

$$4x - 2y + z = -8$$

$$x + 2y - 3z = 9$$

$$\boxed{5x + z = -7}$$

2+3

$$x + 2y - 3z = 9$$

$$\underline{6x - 2y - 8z = 6}$$

$$7x - 11z = 15$$

$$5x + z = -7$$

$$7x - 11z = 15$$

$$\underline{55x + 11z = -77}$$

$$7x - 11z = 15$$

$$62x = -62$$

$$x = -1$$

$$-5 + z = -7$$

$$z = -2$$

$$-2 - y + 4 = -8$$

$$-y = -2$$

$$y = 2$$

$$(-1, 2, -2)$$

⑧

$$\begin{array}{r} x - 3z = -5 \\ 2x - y + 2z = 16 \\ 7x - 3y - 5z = 19 \end{array}$$

2+3

$$\begin{array}{r} -6x + 3y - 6z = -48 \\ 7x - 3y - 5z = 19 \end{array}$$

$$x - 11z = -29$$

$$x - 3z = -5$$

$$-8z = -24$$

$$z = 3$$

$$x - 9 = -5$$

$$x = 4$$

$$8 - y + 6 = 16$$

$$-y = 2$$

$$y = -2$$

$$(4, -2, 3)$$

⑨

$$x^2 + y^2 = 9$$

$$x = -2y + 3$$

$$(-2y + 3)^2 + y^2 = 9$$

$$4y^2 - 12y + 9 + y^2 = 9$$

$$5y^2 - 12y = 0$$

$$y(5y - 12) = 0$$

$$y = 0 \quad y = \frac{12}{5}$$

$$x = 0 + 3 = x = 3$$

$$(3, 0)$$

$$x = -2\left(\frac{12}{5}\right) + 3$$

$$x = -\frac{24}{5} + \frac{15}{5}$$

$$-\frac{9}{5}$$

$$\left(-\frac{9}{5}, \frac{12}{5}\right)$$

⑩

$$3x^2 + 2y^2 = 14$$

$$2x^2 - y^2 = 7$$

$$3x^2 + 2y^2 = 14$$

$$4x^2 - 2y^2 = 14$$

$$7x^2 = 28$$

$$x^2 = 4$$

$$x = \pm 2$$

$$(2, 1) (2, -1) (-2, 1) (-2, -1)$$

$$2(4) - y^2 = 7$$

$$-y^2 = -1$$

$$y = \pm 1$$

⑪

$$y = x^2 - 6$$

$$x^2 + y^2 = 8$$

$$x^2 + y = -6$$

$$x^2 + y^2 = 8$$

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

$$(y + 2)(y - 1)$$

$$y = -2 \quad y = 1$$

$$-2 = x^2 - 6$$

$$x^2 = 4$$

$$x = \pm 2$$

$$(-2, 2) (2, -2)$$

$$1 = x^2 - 6$$

$$x^2 = 7$$

$$x = \pm \sqrt{7}$$

$$(\sqrt{7}, 1) (-\sqrt{7}, 1)$$

$$(12) \quad x - 2y = 4$$

$$x = 2y + 4$$

$$2y^2 + xy = 8$$

$$\hline 2y^2 + (2y+4)y = 8$$

$$2y^2 + 2y^2 + 4y - 8 = 0$$

$$4y^2 + 4y - 8 = 0$$

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

$$(y+2)(y-1) = 0$$

$$y = -2 \quad y = 1$$

$$x = -4 + 4 = 0$$

$$x = 2 + 4$$

$$(\text{---}, 0)$$

$$x = 6$$

$$(0, -2)$$

$$(6, 1)$$

$$(13) \quad \frac{x^2 - 6x + 3}{(x-2)^3} = \frac{A}{(x-2)} + \frac{B}{(x-2)^2} + \frac{C}{(x-2)^3}$$

$$x^2 - 6x + 3 = A(x-2)^2 + B(x-2) + C$$

$$A(x^2 - 4x + 4) + B(x-2) + C$$

$$Ax^2 - 4Ax + 4A + Bx - 2B + C$$

$$A = 1$$

$$-4A + B = -6$$

$$-4 + B = -6$$

$$B = -2$$

~~$$4A + C = 3$$~~

$$4A - 2B + C = 3$$

$$4 + 4 + C = 3$$

$$C = -5$$

$$\boxed{\frac{1}{x-2} + \frac{2}{(x-2)^2} - \frac{5}{(x-2)^3}}$$

$$\textcircled{14} \quad \frac{10x^2 + 9x - 7}{(x+2)(x+1)(x-1)} = \frac{A}{x+2} + \frac{B}{x+1} + \frac{C}{x-1}$$

$$= A(x+1)(x-1) + B(x+2)(x-1) + C(x+2)(x+1)$$

$$10x^2 + 9x - 7 = A(x^2 - 1) + B(x^2 + x - 2) + C(x^2 + 3x + 2)$$

$$Ax^2 - A + Bx^2 + Bx - 2B + Cx^2 + 3Cx + 2C$$

$$A + B + C = 10$$

$$B + 3C = 9$$

$$\underline{-A - 2B + 2C = -7}$$

$$+3 \quad \underline{-B + 3C = 3}$$

$$\underline{B + 3C = 9}$$

$$6C = 12$$

$$C = 2$$

$$B + 6 = 9$$

$$B = 3$$

$$A + 3 + 2 = 10$$

$$A = 5$$

$$\frac{5}{x+2} + \frac{3}{x+1} + \frac{2}{x-1}$$

15

$$\frac{x^2 + 4x - 23}{(x+3)(x^2+4)} = \frac{A}{x+3} + \frac{Bx+C}{x^2+4}$$

$$x^2 + 4x - 23 = A(x^2+4) + (Bx+C)(x+3)$$
$$Ax^2 + 4A + Bx^2 + 3Bx + Cx + 3C$$

$$A + B = 1$$

$$3B + C = 4$$

$$4A + 3C = -23$$

$$C = -3B + 4$$

$$4A + (3)(-3B + 4) = -23$$

$$4A - 9B + 12 = -23$$

$$4A - 9B = -35$$

$$-4A - 4B = -4$$

$$-13B = -39$$

$$B = 3$$

$$A + 3 = 1$$

$$A = -2$$

$$9 + C = 4$$

$$C = -5$$

$$\frac{-2}{x+3} + \frac{3x-5}{x^2+4}$$

16

$$\frac{x^3}{(x^2+4)^2} = \frac{Ax+B}{x^2+4} + \frac{Cx+D}{(x^2+4)^2}$$

$$x^3 = (Ax+B)(x^2+4) + Cx+D$$

$$x^3 = Ax^3 - Bx^2 + 4Ax - 4B + Cx + D$$

$$A=1 \quad -B=0$$

$$B=0$$

$$4A+C=0$$

$$4+C=0$$

$$C=-4$$

$$-4B+D=0$$

$$D=0$$

$$\frac{x}{x^2+4} + \frac{-4x}{(x^2+4)^2}$$

17

x = PDA's

A) $C(x) = 400,000 + 20x$

B) $R(x) = 100x$

C) $P(x) = 100x - (400,000 + 20x)$
 $= 80x - 400,000$

D) $400,000 + 20x = 100x$
 $80x = 400,000$

$$x = \frac{400,000}{80} = 5,000$$

5,000 PDA's

Profit = Cost = $500,000$

18

$$x = \text{Roses} \quad \textcircled{4} \quad 6$$

$$y = \text{carnations} \quad \textcircled{16} \quad 14$$

$$x + y = 20$$

$$\underline{3x + 1.5y = 39}$$

$$x + y = 20$$

$$\underline{30x + 15y = 390}$$

$$-30x - 30y = -600$$

$$\underline{30x + 15y = 390}$$

$$-15y = -210$$

$$y = \underline{\underline{14}}$$

19

$$x + y = 90$$

$$\underline{x + 3y + 20 = 180}$$

$$x + y = 90$$

$$\underline{x + 3y = 160}$$

$$-2y = -70$$

$$y = 35$$

$$x = 55^0$$

20

$$(-1, 0) \quad 0 = a - b + c$$

$$(1, 4) \quad 4 = a + b + c$$

$$(2, 3) \quad 3 = 4a + 2b + c$$

eq. 1+2

$$4 = 2a + 2c$$

$$\boxed{a + c = 2}$$

2+3

$$8 = 2a + 2b + 2c$$

$$3 = 4a + 2b + c$$

$$5 = -2a + c$$

$$2 = a + c$$

$$3 = -3a$$

$$a = -1$$

$$-1 + c = 2$$

$$c = 3$$

$$-1 - b + 3 = 0$$

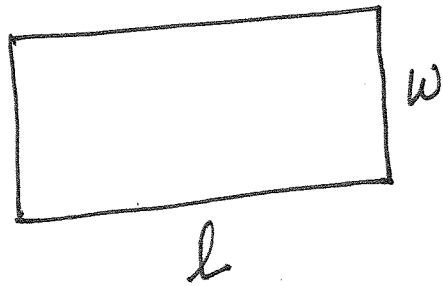
$$-b = -2$$

$$b = 2$$

$$y = -x^2 + 2x + 3$$

put in $y =$ on calc to see if
you are correct

(21)



~~(5)~~

$$l = \frac{5}{2}$$

$$w = 8$$

$$l = 8$$

$$w = \frac{5}{2}$$

$$2l + 2w = 21$$

$$lw = 20$$

$$w = \frac{20}{l}$$

$$2l + 2\left(\frac{20}{l}\right) = 21$$

$$2l^2 + 40 = 21l$$

$$2l^2 - 21l + 40 = 0$$

$$(2l - 5)(l - 8)$$

$$l = \frac{5}{2} \quad l = 8$$