

9.2.1 9-53 → 9-58

$$\begin{aligned} 9-53) \quad & 8x - 3y - 2z = -8 \quad (1) \\ & -2x + 8y + 7z = 26 \quad (2) \\ & 4x + y - 5z = 23 \quad (3) \end{aligned}$$

$$\begin{aligned} (2) \times (3) \quad & 2(-2x + 8y + 7z = 26) \Rightarrow \begin{array}{r} -4x + 16y + 14z = 52 \\ 4x + y - 5z = 23 \\ \hline 17y + 9z = 75 \end{array} \end{aligned}$$

$$\begin{aligned} + (3) \quad & 8x - 3y - 2z = -8 \\ & -8x - 2y + 10z = 46 \\ \hline & -5y + 8z = -54 \end{aligned}$$

$$\begin{aligned} -5(6) + 8z &= -54 \\ -30 + 8z &= -54 \\ 8z &= -24 \\ z &= -3 \end{aligned}$$

$$\boxed{\left(\frac{1}{2}, 6, -3\right)}$$

$$\begin{aligned} 13(6y + 7z) &= 600 \\ + 45y - 7z &= 404 \\ \hline 101y &= 1084 \\ y &= 6 \end{aligned}$$

$$\begin{aligned} -2x + 8(6) + 7(-3) &= 26 \\ -2x + 48 - 21 &= 26 \\ -2x + 27 &= 26 \\ -2x &= -1 \\ x &= \frac{1}{2} \end{aligned}$$

9-54)  $x^3 + 2x^2 + 25x - 50 \div (x-2)$

$$\begin{array}{r|rrrr} 2 & 1 & -2 & 25 & -50 \\ & & 2 & 0 & 50 \\ \hline & 1 & 0 & 25 & 0 \\ & & & 1x^2 + 0x + 25 & \\ & & & \boxed{x^2 + 25} & \end{array}$$

9-55)  $(x-2)(x^2+25)$

$$\begin{aligned} x &= 2 \\ x &= \pm 5i \end{aligned}$$

$$\begin{aligned} x^2 + 25 &= 0 \\ \sqrt{x^2} &= \sqrt{-25} \\ x &= \sqrt{25}i \\ x &= \pm 5i \end{aligned}$$

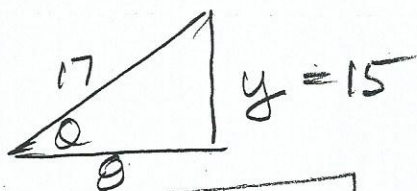
$$9-56) \cos Q = \frac{8}{17}$$

$$17^2 = y^2 + 8^2$$

$$289 - 64 = y^2$$

$$225 = y^2$$

$$15 = y$$



$$\sin Q = \frac{15}{17}$$

$$9-57) a) 2+3i + 1-i = \boxed{3+2i}$$

$$b) 2+3i - (1-i) = 2+3i - 1 + i = \boxed{1+4i}$$

$$c) (2+3i)(1-i)$$

$$2-2i+3i-3i^2 = 2+i-3(-1) = 2+i+3$$

$$a) \frac{(2+3i)(1+i)}{1-i} = \frac{2+2i+3i+3i^2}{1+i-i-i^2}$$

$$\frac{2+5i+3(-1)}{1-(-1)} = \frac{-1+5i}{2}$$

$$9-58) a) \frac{15}{x-2} = \frac{16}{x}$$

$$15x = 16x - 32$$

$$32 = x$$

$$b) \left[ \frac{1}{x} + \frac{1}{2x} = 9 \right] 2x$$

$$\frac{2x}{x} + \frac{2x}{2x} = 18x$$

$$2 + 1 = 18x$$

$$\frac{3}{18} = \frac{18x}{18}$$

$$\boxed{\frac{1}{6} = x}$$