

$$12x = 18$$

$$x = \frac{18}{12} = \frac{3}{2}$$

$$\underline{\circ} \left(\frac{3}{2}, \frac{5}{4} \right)$$

c) $2x + 4y - 5 = 0$

$$\begin{array}{l} x - 2y + 5 = 0 \quad | \cdot 2 \\ 2x + 4y - 5 = 0 \\ 2x - 4y + 10 = 0 \\ 4x + 5 = 0 \\ 4x = -5 \\ x = -\frac{5}{4} \end{array}$$

$$\begin{array}{l} 2 \cdot \frac{3}{2} - 4y + 2 = 0 \\ 3 - 4y + 2 = 0 \\ 5 - 4y = 0 \\ 4y = 5 \\ x = \frac{5}{4} \end{array}$$

$$\begin{array}{l} 2 \cdot \left(-\frac{5}{4}\right) + 4y - 5 = 0 \\ -\frac{5}{2} + 4y - 5 = 0 \\ 4y = \frac{5}{2} + \frac{15}{2} \\ 4y = \frac{20}{2} \\ y = \frac{15}{2} \cdot \frac{1}{4} = \frac{15}{8} \end{array}$$

$$\underline{\circ} \left(-\frac{5}{4}, \frac{15}{8} \right)$$

d) $\cos \widehat{BAC} = \frac{\overrightarrow{AB} \cdot \overrightarrow{AC}}{|\overrightarrow{AB}| \cdot |\overrightarrow{AC}|}$

$$\begin{aligned} &= \frac{(-5) \cdot (-2) + (-2) \cdot 4}{\sqrt{29} \cdot \sqrt{20}} = \frac{10 - 8}{2\sqrt{145}} \\ &= \frac{2}{2\sqrt{145}} = \frac{1}{\sqrt{145}} \end{aligned}$$

$$\widehat{BAC} = 85,2^\circ$$

$$\begin{aligned} \cos \widehat{ABC} &= \frac{\overrightarrow{BA} \cdot \overrightarrow{BC}}{|\overrightarrow{BA}| \cdot |\overrightarrow{BC}|} \\ &= \frac{5 \cdot 3 + 2 \cdot 6}{\sqrt{29} \cdot \sqrt{145}} = \frac{15 + 12}{3\sqrt{145}} = \frac{27}{3\sqrt{145}} \\ &= \frac{9}{\sqrt{145}} \end{aligned}$$

$$\begin{aligned} \overrightarrow{BA} &= A - B = (5, 2) \\ \overrightarrow{BC} &= C - B = (3, 6) \end{aligned}$$

$$\begin{aligned} \overrightarrow{AB} &= B - A = (-5, -2) \\ \overrightarrow{AC} &= C - A = (-2, 4) \end{aligned}$$

$$\begin{aligned} AB &= \sqrt{25+4} = \sqrt{29} \\ AC &= \sqrt{4+16} = \sqrt{20} \end{aligned}$$

$$\begin{aligned} \cos \widehat{ACB} &= \frac{\overrightarrow{CA} \cdot \overrightarrow{CB}}{|\overrightarrow{CA}| \cdot |\overrightarrow{CB}|} \\ &= \frac{2 \cdot (-3) + (-4) \cdot (-6)}{\sqrt{20} \cdot \sqrt{145}} = \frac{-6 + 24}{30} = \frac{18}{30} \\ &= \frac{9}{15} = \frac{3}{5} \end{aligned}$$

$$\begin{aligned} \overrightarrow{CA} &= A - C = (2, -4) \\ \overrightarrow{CB} &= B - C = (-3, -6) \end{aligned}$$

$$\begin{aligned} CA &= \sqrt{20} \\ CB &= \sqrt{9+36} = \sqrt{45} \end{aligned}$$

$$\widehat{ACB} = 53,1^\circ$$