

Math 27, HW #1 Selected Problems

Pg. B8, #29

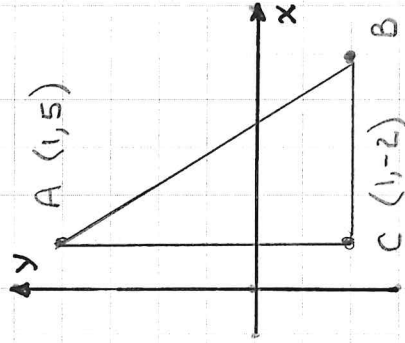
For $xy > 0$

either $x > 0$ and $y > 0$

or $x < 0$ and $y < 0$

\Rightarrow Q I or Q III

Pg. B9, #46



$$a) \quad AB = \sqrt{4^2 + (-7)^2} = \sqrt{65}$$

$$BC = \sqrt{(-4)^2 + 0^2} = \sqrt{16} = 4$$

$$AC = 7$$

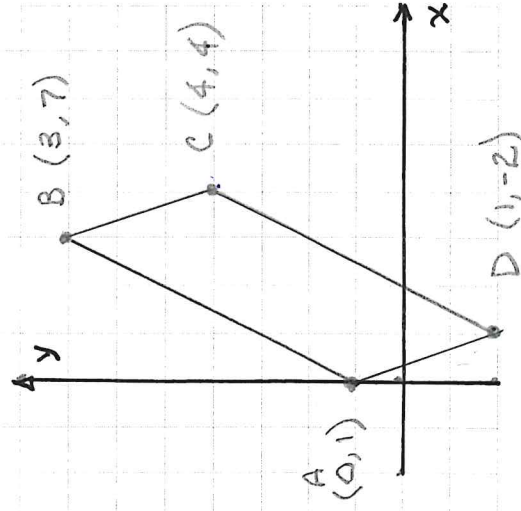
$$b) \quad 7^2 + 4^2 = 65 = (\sqrt{65})^2 \quad \checkmark$$

Pg. B9, #52

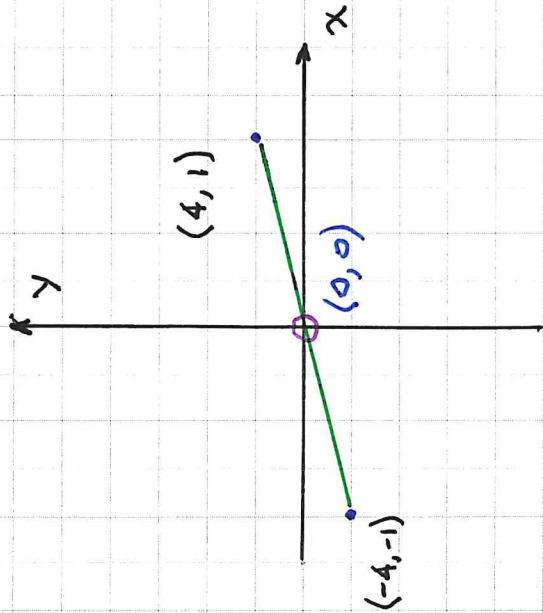
$$m_{\overline{AB}} = \frac{7-1}{3-0} = \frac{6}{3} = 2 \quad \leftarrow \frac{4-(-2)}{4-1} = \frac{6}{3} = 2 = m_{\overline{CD}}$$

\overline{AB} is parallel to \overline{CD}

Show $\overline{BC} \parallel \overline{AD}$



Pg. B10, #74 Write an equation for a circle whose diameter has endpoints: $(-4, -1)$ and $(4, 1)$



Center: $\left(\frac{-4+4}{2}, \frac{-1+1}{2}\right) = \begin{pmatrix} h \\ k \end{pmatrix} = \begin{pmatrix} 0 \\ 0 \end{pmatrix}$

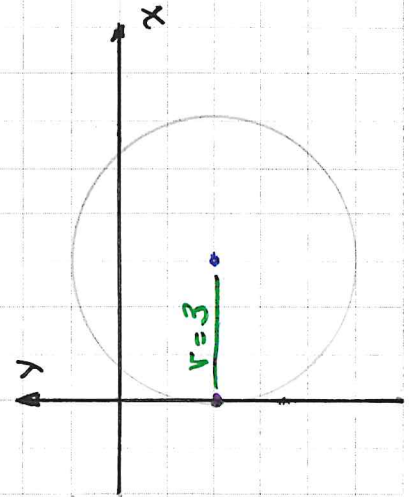
Radius = $r = \sqrt{(4-0)^2 + (1-0)^2} = \sqrt{17}$

$(x-h)^2 + (y-k)^2 = r^2$

EQ: $(x-0)^2 + (y-0)^2 = (\sqrt{17})^2$

$x^2 + y^2 = 17$

Pg. B10, #76 Center: $(3, -2)$; tangent to the y-axis.



EQ: $(x-3)^2 + (y+2)^2 = 3^2 = 9$