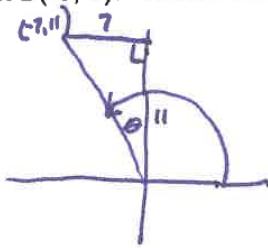


### 3.11 - 3.14 Warm up

1) Determine the direction angle for the vector with initial point A(4, -6) and terminal point B(-3, 5). Sketch the vector and angle

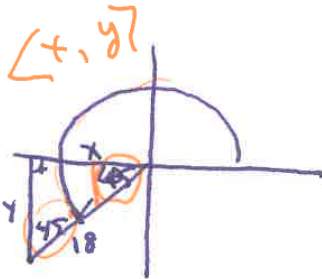


$$\text{vector} = \langle -7, 11 \rangle$$

$$\theta = \tan^{-1}(11/7) = 32.5^\circ$$

$$\text{Direction } \phi = 90 + 32.5 = 122.5^\circ$$

2) Determine the vector with a direction angle of  $225^\circ$  and a magnitude of 18. Write your answer in BOTH component form and as a linear combination. Sketch the vector and angle



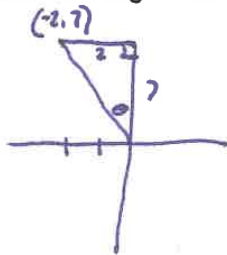
$$\text{randy} = \frac{18}{\sqrt{2}} = \frac{18\sqrt{2}}{2} = \boxed{9\sqrt{2}}$$

$$\langle -9\sqrt{2}, -9\sqrt{2} \rangle$$

3) Determine the direction angle and magnitude for the vector  $-2i + 7j$

$$\theta = \tan^{-1}(7/2)$$

$$= 15.9^\circ$$



$$\|m\|^2 = 2^2 + 7^2$$

$$= 4 + 49$$

$$\|m\| = \boxed{\sqrt{53}}$$

$$\text{Direction } \phi = 90 + 15.9$$

$$= 105.9^\circ$$

4) Given vector  $v = \langle 7, -2 \rangle$  and vector  $u = \langle 4, 6 \rangle$

> Determine  $5u - 2v$

$$5u = \langle 20, 30 \rangle$$

$$-2v = \langle 14, -4 \rangle$$

$$\hline \langle 6, 34 \rangle$$

> Determine  $-v + 3u$

$$-v = \langle -7, 2 \rangle$$

$$+ 3u = \langle 12, 18 \rangle$$

$$\hline \langle 5, 20 \rangle$$