Translating Vector notations

Polar to Components

1. For each vector, sketch the vector (including arrowheads to show direction) and then calculate the components. Show all work!

A. 10m @ 20°

B. 5m @ 120°

C. 2cm @ -75°

D. 4km @ -160°

E. 25m @ 30° N of E

F. 176km @ 45° S of W

G. 74m @ 20° E of S

H. 375m @ 85° N of W

I. 900km @ 270 °

J. 755cm @ 330°

Components to Polar

2. Given the components of the vector, sketch the components including arrowheads to show direction), sketch the vector and then calculate the magnitude and direction of the vector. All angles should be measured from 0° at the positive X-axis. Show all work!

A. 10m North and 25m West

B. x=+12cm and y=+24cm

C. x = 45m and y=-15m

D. x= - 35m and y= - 100m

E. 400m South and 300m East

F. 65km West and 200km South

Answers:

Part #1	X Component	Y Component		Part #2	Magnitude	Direction
A	9.40m	3.42m		A	26.93m	158.2°
B	-2.5m	4.33m		B	26.83cm	63.43°
C	.52cm	-1.93cm		C	47.43m	-18.43°
D	-3.76km	-1.37km		D	105.95m	250.71°
E	21.65m East	12.5m North		E	500m	306°
F	124.45 km West	124.45 km South		F	210.3km	252°
G	25.3 m East	69.4 m South				
H	32.68 m West	373.57m North				
I	0	-900 km				
J	653.85cm	-377.5cm				