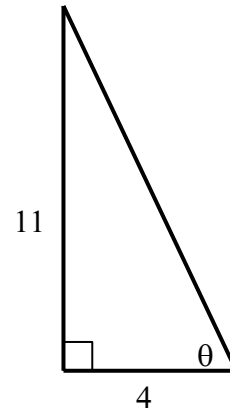
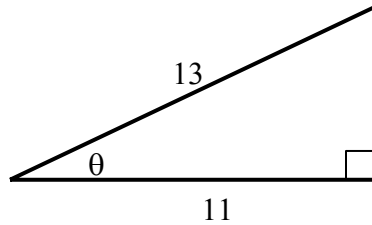
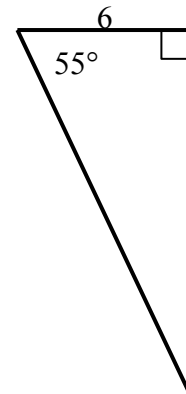
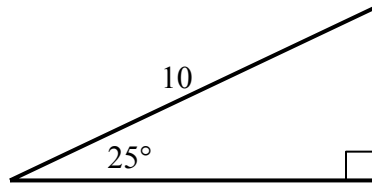


W2.01**Vectors**

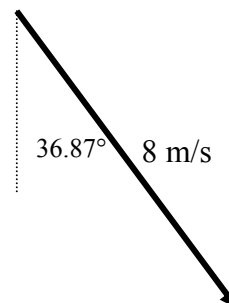
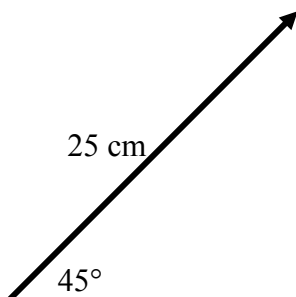
1. For each of the following, find the third side and the angle labeled.



2. Find the other two sides of each triangle.

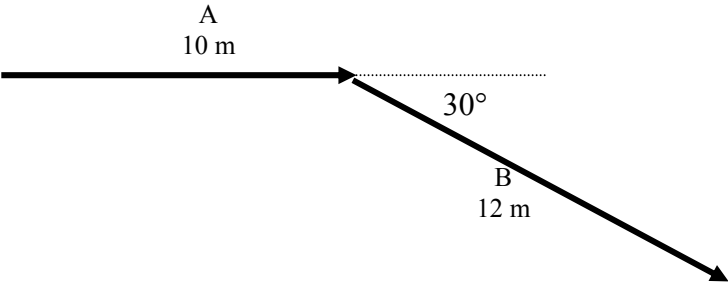


3. Resolve each of the following vectors into its horizontal and vertical components. Determine the magnitude of each component vector.

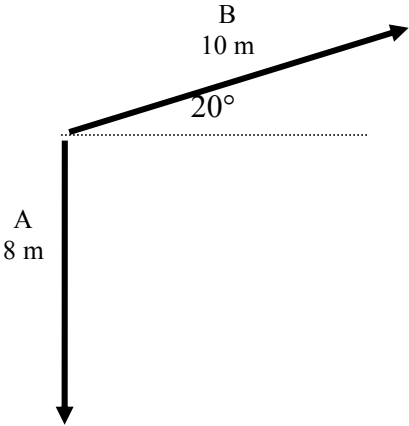


4. Find the resultant of the following sets of vectors “trigonometrically” (by resolving into and adding horizontal and vertical component vectors). Include the appropriate direction!

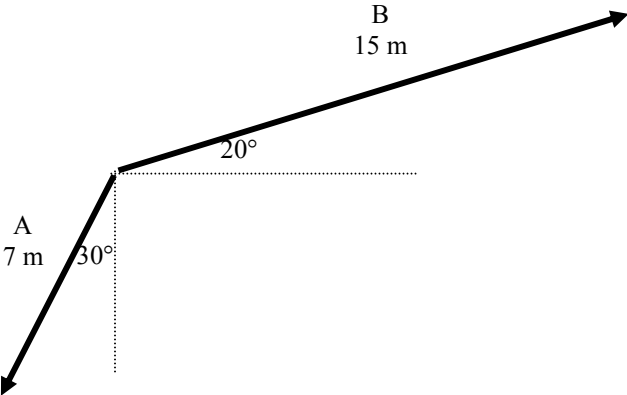
	X (m)	Y (m)
A		
B		
Σ		



	X (m)	Y (m)
A		
B		
Σ		



	X (m)	Y (m)
A		
B		
Σ		



5. A man walks 10 km northeast (NE) and then 8 km due north. (i) How far is he from where he started? (ii) What direction must he head in order to walk straight back to his starting position?

	X (km)	Y (km)
A		
B		
Σ		

6. A woman jogs 100 meters due west, 100 meters southwest and then straight back to her starting position. What was the total distance she covered?

	X (km)	Y (km)
A		
B		
?		
Σ		

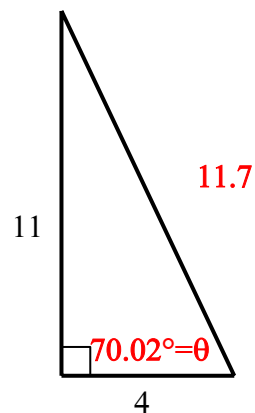
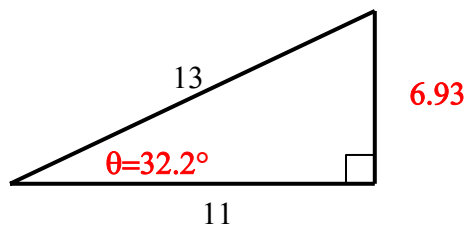
7. Force A is 20 N and acts at an angle of 70° north of east. Force B is 40 N and acts at an angle of 65° south of east. What third force must be added to the following two forces to give a resultant of zero?

	X (N)	Y (N)
A		
B		
3rd		
Σ		

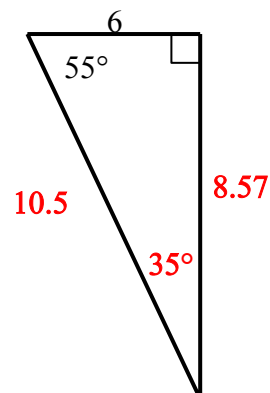
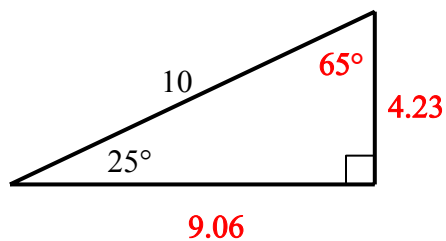
W2.01

Vectors - KEY

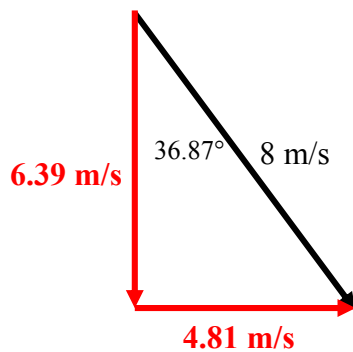
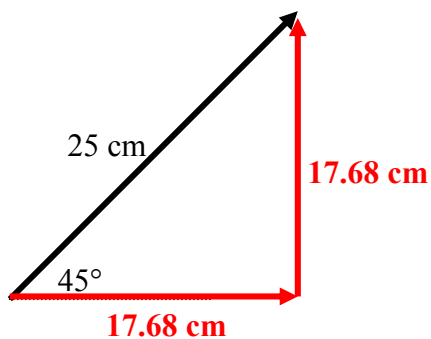
1. For each of the following, find the third side and the angle labeled.



2. Find the other two sides of each triangle.



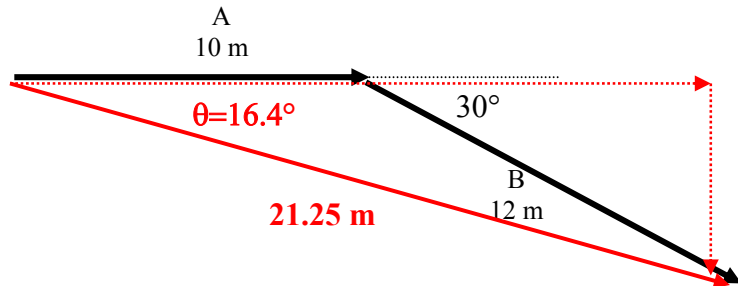
3. Resolve each of the following vectors into its horizontal and vertical components. Determine the magnitude of each component vector.



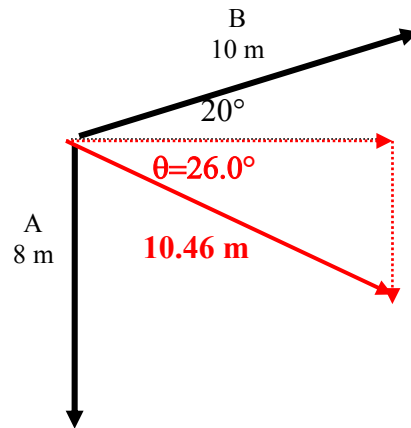
KEY

4. Find the resultant of the following sets of vectors “trigonometrically” (by resolving into and adding horizontal and vertical component vectors). Include the appropriate direction!

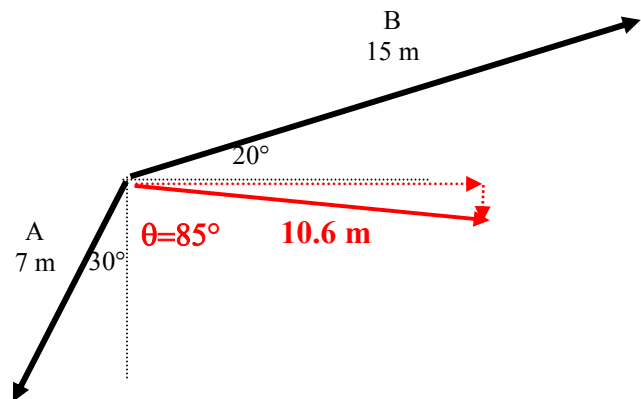
	X (m)	Y (m)
A	10	0
B	10.39	-6
Σ	20.39	-6



	X (m)	Y (m)
A	0	-8
B	9.40	3.42
Σ	9.40	-4.58



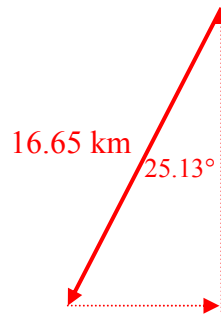
	X (m)	Y (m)
A	-3.5	-6.06
B	14.1	5.13
Σ	10.6	-0.93



KEY

5. A man walks 10 km northeast (NE) and then 8 km due north. (i) How far is he from where he started? (ii) What direction must he head in order to walk straight back to his starting position?

	X (km)	Y (km)
A	+7.07	+7.07
B	0	+8
Σ	+7.07	+15.07



6. A woman jogs 100 meters due west, 100 meters southwest and then straight back to her starting position. What was the total distance she covered?

	X (m)	Y (m)
A	-100	0
B	-70.7	-70.7
?	?	?
Σ	0	0



$$100 \text{ m} + 100 \text{ m} + 184.76 \text{ m} = 384.76 \text{ m}$$

7. Force A is 20 N and acts at an angle of 70° north of east. Force B is 40 N and acts at an angle of 65° south of east. What third force must be added to the following two forces to give a resultant of zero?

	X (N)	Y (N)
A	+6.84	+18.8
B	+16.9	-36.25
?	?	?
Σ	0	0

