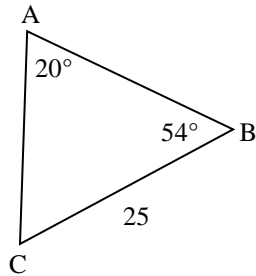
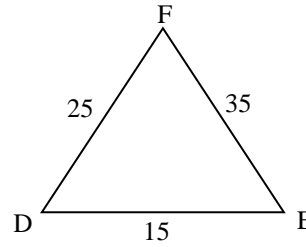


Pre-Calculus Chapter 6 Test Individual Test Review
 All answers must be accurate to 2 decimal places.

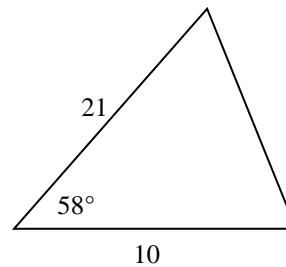
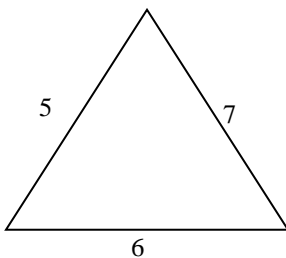
1. Solve $\triangle ABC$



2. find $\angle F$ in $\triangle DEF$:



3. Find the area of each triangle below. You must use Heron's formula, $A = \sqrt{s(s-a)(s-b)(s-c)}$, on one, and the formula for area of an oblique triangle, $A = \frac{1}{2}bc \sin A$, on the other. You must show your work.



4. You and Bob are standing on point A. You walk 100 meters to point B. Bob walks 125 meters to point C. There is a 50° angle between your path and Bob's path.

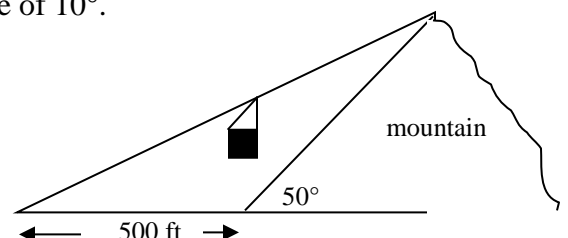
a) What is the distance between points B and C?

b) What is the measure of $\angle ABC$?

5. An aerial tram starts at a point 500 feet from the base of a mountain whose face has a 50° angle of elevation. The tram ascends at an angle of 10° .

a) What is the length of the cable?

b) How high is the mountain?



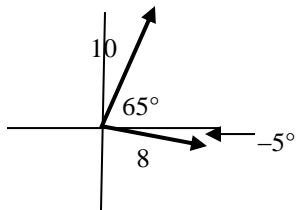
For 6 and 7: Perform the indicated operations on the following vectors:

$$\mathbf{u} = \langle 2, 8 \rangle \quad \mathbf{v} = \langle 10, -4 \rangle \quad \mathbf{w} = \langle -3, -7 \rangle \quad \mathbf{t} = 6\mathbf{i} + 8\mathbf{j}$$

6. a) $3\mathbf{u} - 2\mathbf{v}$ b) $\mathbf{u} + \mathbf{v}$ c) $\|\mathbf{t}\|$

7. Find the magnitude of \mathbf{u} : Find the direction angle of \mathbf{w} :

8. Write the component form of a vector with initial point $P(-6, 14)$ and terminal point $Q(-4, 16)$.



9. Find the magnitude and direction of the resultant vector:

10. An ocean liner heads on a course $N20^\circ W$ traveling at 100 knots. It encounters an ocean current of 20 knots traveling $S15^\circ W$.

- a) What is the component form of the resultant vector?
- b) What is the actual resultant speed of the ocean liner?
- c) What is the actual resultant bearing of the ocean liner?

11. Write $(\sqrt{\quad})$ in trigonometric form.

12. Divide and leave in trigonometric form: $\frac{(\quad)}{(\quad)}$

13. Find $(\sqrt{\quad})$.

Solutions

1. $b=59.14, C=106^\circ, c=70.26$
2. $F=21.79^\circ$
3. 14.70 89.05
4. a) 97.75m b) 78.40°
5. a) 595.88 feet b) 103.47 feet
6. a) $\langle -4, 32 \rangle$ b) $\langle 12, 4 \rangle$ c) 10
7. 8.25 or $2\sqrt{17}$, 246.80°
8. $\langle 2, 2 \rangle$
9. $\|v\| = 14.79$ $\theta = 34.42^\circ$
10. a) $\langle -39.38, 74.65 \rangle$ b) 84.4 knots c) 117.81°
11. $14 \left(\begin{array}{cc} \text{---} & \text{---} \\ \text{---} & \text{---} \end{array} \right)$
12. $\left[\begin{array}{cc} (\quad) & (\quad) \\ \text{---} & \text{---} \end{array} \right]$
13. $-59049i$