**Solving Non-Right Triangles**

Find the solution(s) to the following SSA triangles (not to scale). (There may be 0 or 1 or 2 solutions.)

\[ \begin{align*}
A &= 15^\circ \\
B &= \, \\
c &= 7 \\
a &= 2 \\
A &= 62^\circ \\
B &= \, \\
c &= 5 \\
a &= 9
\end{align*} \]

**Vectors and Coordinates**

\[ \vec{d} = (0, 5) \quad \vec{b} = (3, 0) \quad \|\vec{c}\| = 13 \text{ and } \vec{c} \text{ is in the direction } 202.6^\circ \]

TRUE or FALSE: \[ \vec{d} + 4\vec{b} + \vec{c} = (0, 0) \]

A passenger train is headed west at a speed of 150 mph. A passenger throws a baseball from the train at 65 mph aimed in the direction 25° north of east. Relative to the ground, what is the speed and direction of the baseball?

A goose is flying at 43 mph in the direction 69° north of west. The bird encounters a wind and as a result is now moving at 35 mph in the direction 83° north of east. What is the speed and direction of the wind it encountered?

**Graphs and Equations of Conics**

Each of the equations below corresponds to one of the graphs below. Complete the square, match the equations with their graphs, and then label all of the dots below with coordinates.

(a) \[ x^2 - 14x + y^2 - 6y = -54 \]

(b) \[ x = 2y^2 + 12y + 10 \]

(c) \[ x^2 + 10x + 9y^2 - 18y = 2 \]

(d) \[ x^2 - 2x - 3y + 7 = 0 \]
Solving Non-Right Triangles
Find the solution(s) to the following SSA triangles (not to scale). (There may be 0 or 1 or 2 solutions.)

\[
\begin{align*}
A &= 15^\circ \\
b &= 7.61 \\
c &= 7 \\
B &= 100.1^\circ \\
a &= 2 \\
C &= 64.9^\circ \\
b &= 7.91 \\
c &= 5 \\
B &= 50.0^\circ \\
a &= 2 \\
C &= 115.1^\circ \\
b &= 6.19 \\
c &= 5 \\
B &= 88.6^\circ \\
a &= 9 \\
C &= 29.4^\circ \\
b &= 10.19
\end{align*}
\]

Vectors and Coordinates
\[ \vec{a} = (0, 5) \quad \vec{b} = (3, 0) \quad \|\vec{c}\| = 13 \text{ and } \vec{c} \text{ is in the direction } 202.6^\circ \]

**TRUE** or **FALSE:** \[ \vec{a} + 4 \vec{b} + \vec{c} = (0, 0) \]

A passenger train is headed west at a speed of 150 mph. A passenger throws a baseball from the train at 65 mph aimed in the direction 25° north of east. Relative to the ground, what is the speed and direction of the baseball?

A goose is flying at 43 mph in the direction 69° north of west. The bird encounters a wind and as a result is now moving at 35 mph in the direction 83° north of east. What is the speed and direction of the wind it encountered?

\[ \|\vec{t} + \vec{b}\| = 95.1 \text{ mph in the } 163.2^\circ \text{ direction} \]
\[ \|\vec{w}\| = 20.4 \text{ mph in the } 344.6^\circ \text{ direction} \]

Graphs and Equations of Conics
Each of the equations below corresponds to one of the graphs below. Complete the square, match the equations with their graphs, and then label all of the dots below with coordinates.

(a) \[ x^2 - 14x + y^2 - 6y = -54 \]
(b) \[ x = 2y^2 + 12y + 10 \]
(c) \[ x^2 + 10x + 9y^2 - 18y = 2 \]
(d) \[ x^2 - 2x - 3y + 7 = 0 \]