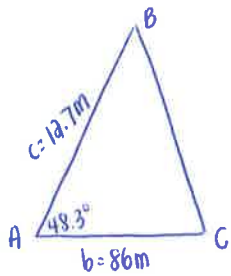


1. Find the area of the triangle ABC for which $A = 48.3^\circ$, $b = 86$ m, and $c = 12.7$ m. Round your answer to the nearest tenth.



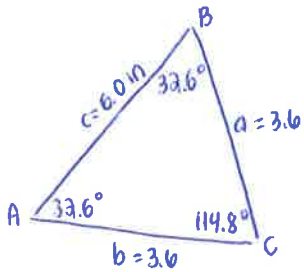
$$A = \frac{1}{2} bc \sin A$$

$$= \frac{1}{2} (86)(12.7) \sin 48.3^\circ$$

$$= (43)(12.7) \sin 48.3^\circ$$

$A = 407.7m^2$

2. Find the area of triangle ABC for which $A = 32.6^\circ$, $B = 32.6^\circ$ and $c = 6.0$ in. Round your answer to the nearest inch.



$$\frac{\sin 32.6}{a} = \frac{\sin 32.6}{b} = \frac{\sin 114.8}{c}$$

$$\frac{b \sin 32.6}{\sin 114.8} = \frac{b \sin 114.8}{\sin 114.8}$$

$$b = 3.6$$

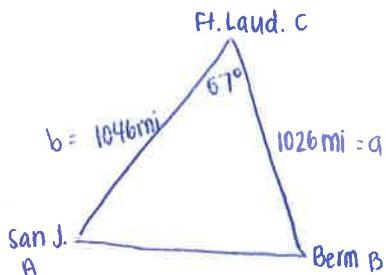
$$a = 3.6$$

$$A = \frac{1}{2} (3.6)(6) \sin 32.6$$

$$A = (3.6)(3) \sin 32.6$$

$A = 5.8 \text{ in}^2$

3. The angle formed by the lines of sight from Fort Lauderdale, Florida, to Bermuda and to San Juan, Puerto Rico, is approximately 67° . The distance from Fort Lauderdale to Bermuda is 1026 miles, and the distance from Fort Lauderdale to San Juan is 1046 miles. Find the area of the Bermuda Triangle, which is formed with those cities as vertices. Round to the nearest mile.



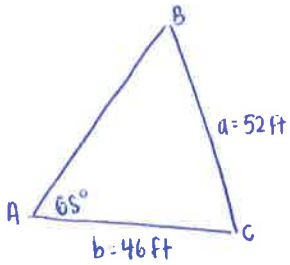
$$A = \frac{1}{2} ab \sin C$$

$$A = \frac{1}{2} (1026)(1046) \sin 67^\circ$$

$$A = (513)(1046) \sin 67^\circ$$

$A = 493,941 \text{ mi}^2$

4. You are seeding a triangular courtyard. One side of the courtyard is 52 feet long and another side is 46 feet long. The angle opposite the 52-foot side is 65 degrees. If one bag of grass seed covers an area of 50 square feet, how many bags of grass seed will you need to cover the courtyard?



$$\frac{\sin 65}{52} = \frac{\sin B}{46} = \frac{\sin C}{c}$$

$$\frac{46 \sin 65}{52} = \frac{52 \sin B}{52}$$

$$\sin B = .8017$$

$$m\angle B = \sin^{-1}(.8017)$$

$$m\angle B = 53.3^\circ$$

$$m\angle C = 61.7^\circ$$

$$A = \frac{1}{2} ab \sin C$$

$$A = \frac{1}{2} (52)(46) \sin 61.7^\circ$$

$$A = (26)(46) \sin 61.7^\circ$$

$$A = 1053.1 \text{ ft}^2$$

$$\div 50$$

$$21.1 \approx \boxed{22 \text{ bags}}$$

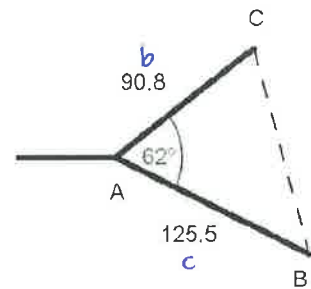
5. A civic group plans to landscape a lot that is located where a road forks and forms an angle of 62° . If the frontages on the road of the lot are 125.5 feet and 90.8 feet, find the area to the nearest whole square foot.

$$A = \frac{1}{2} bc \sin A$$

$$A = \frac{1}{2} (90.8)(125.5) \sin 62^\circ$$

$$A = (45.4)(125.5) \sin 62^\circ$$

$$A = 5030.8 \approx \boxed{5031 \text{ ft}^2}$$



6. Find the area of the quadrilateral shown below. Round to the nearest tenth.

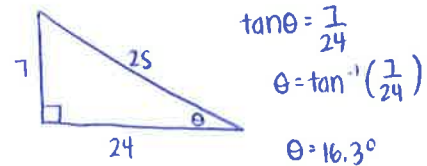
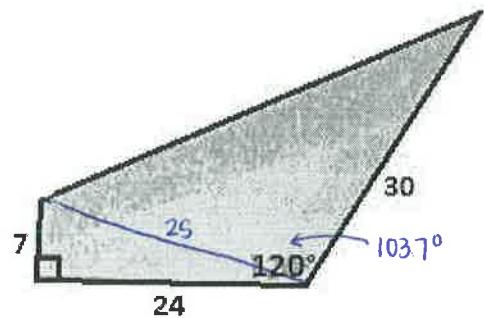
(Hint: Break up the triangle into two different pieces!)

Right Δ : $A = \frac{1}{2} bh$
 $= \frac{1}{2} (7)(24)$
 $A = 84$

Oblique Δ : $A = \frac{1}{2} ab \sin C$
 $= \frac{1}{2} (30)(25) \sin 103.7^\circ$
 $= (15)(25) \sin 103.7^\circ$
 $= 364.3$

Total Area = $84 + 364.3$

$$A = \boxed{448.3 \text{ units}^2}$$



Answer Key:

- 1) 407.7 m^2 ✓ 2) 6 in^2 ✓ 3) $493,941 \text{ miles}^2$ ✓ 4) 22 bags 5) $5,030 \text{ ft}^2$ ✓ 6) 448.3 units^2 ✓