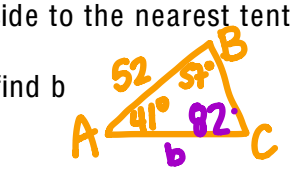
6.2 Law of Sines Name _____

Solve each triangle for the indicated side to the nearest tenth.

1. m∠A = 41°, m∠B = 57°, c = 52; find b

b = 44



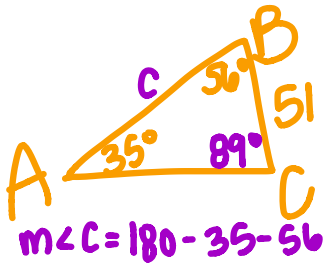
$\frac{\sin 57°}{b} = \frac{\sin 82°}{52}$

m∠C = 180 − 41 − 57

$\frac{52 \sin 57}{\sin 82} = \frac{b \sin 82}{\sin 82}$

2. m∠A = 35°, m∠B = 56°, a = 51; find c

c = 88.9



m∠C = 180 − 35 − 56

$\frac{\sin 89}{c} = \frac{\sin 35}{51}$

$\frac{51 \sin 89}{\sin 35} = \frac{c \sin 35}{\sin 35}$

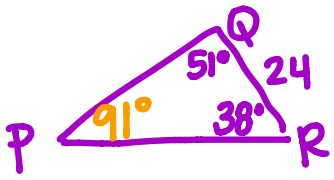
Solve each triangle PQR. Give angles to the nearest degree and sides to the nearest tenth.

3. p = 24, m∠Q = 51°, m∠R = 38°

q = 18.7

r = 14.8

m∠P = 91°



$\frac{\sin 51}{q} = \frac{\sin 91}{24}$

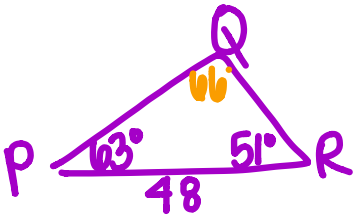
$\frac{\sin 38}{r} = \frac{\sin 91}{24}$

4. q = 48, m∠P = 63°, m∠R = 51°

r = 40.8

p = 46.8

m∠Q = 66°



$\frac{\sin 51}{r} = \frac{\sin 66}{48}$

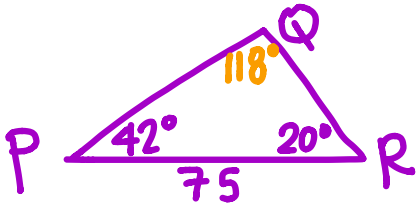
$\frac{\sin 63}{p} = \frac{\sin 66}{48}$

5. q = 75, m∠P = 42°, m∠R = 20°

p = 56.8

r = 29.1

m∠Q = 118°

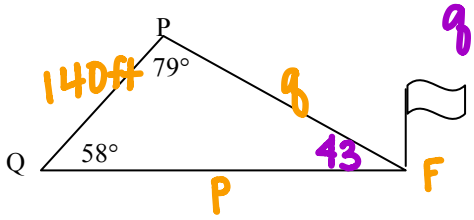


$\frac{\sin 42}{p} = \frac{\sin 118}{75}$

$\frac{\sin 20}{r} = \frac{\sin 118}{75}$

Solve the following word problem. Give sides to the nearest tenth.

6. From two points P and Q that are 140 ft apart, the lines of sight to a flagpole across a river make angles of 79° and 58° respectively, with the line joining P and Q. What are the distances from P and Q to the flagpole?



m∠F = 180 − 58 − 79

q: $\frac{\sin 58}{q} = \frac{\sin 43}{140}$

$\frac{140 \sin 58}{\sin 43} = \frac{q \sin 43}{\sin 43}$

q = 174 ft

p: $\frac{\sin 79}{p} = \frac{\sin 43}{140}$

p = 201.5 ft