Warm Up

1) Triangle ABC; A = 68°, a = 12 and b = 10

Solve for the missing measures.

(B) $\frac{\sin B}{10} = \frac{\sin 68}{12}$

$\sin B = \frac{10 \sin 68}{12}$

$\sin^{-1}(Ans) = B$

$\frac{c}{\sin 61} = \frac{12}{\sin 68}$

$c = \frac{12 \sin 61}{\sin 68}$

$180 - 68 - 51 = C$

B = 51°

C = 61°

c = 11.3

Warm Up

2) A die is rolled 8 times. What is the probability of landing on a 4 exactly 2 times?

$${}_8C_2\left(\frac{1}{6}\right)^2\left(\frac{5}{6}\right)^6$$

0.26

3) The following table shows the winnings in a game of chance:

Win / Loss	15	5	0	-10
Probability	0.2	0.3	0.1	0.4

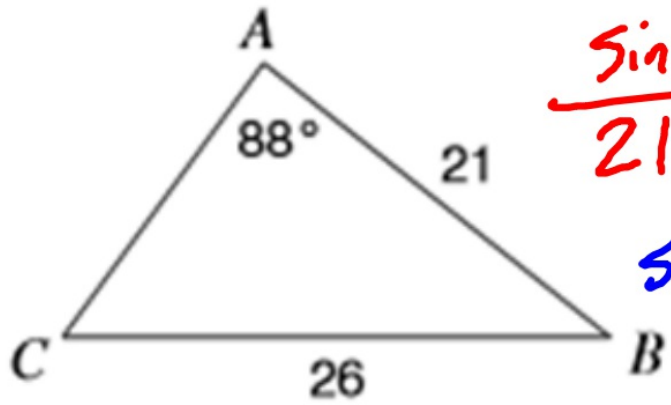
$3 + 1.5 + 0 + -4 =$ **\$0.50**

What is the expected outcome of playing?

Is the game worth playing? Yes

Solve for the missing measures in each triangle below:

1)



$\frac{\sin C}{21} = \frac{\sin 88}{26}$

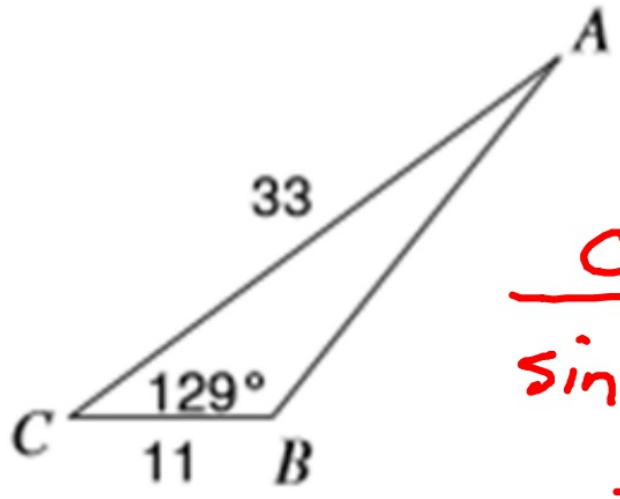
$\sin^{-1}($

A = 88° a = 26

B = 38° b = 16.0

C = 54° c = 21

2)



$\frac{c}{\sin 36} = \frac{33}{\sin 129}$

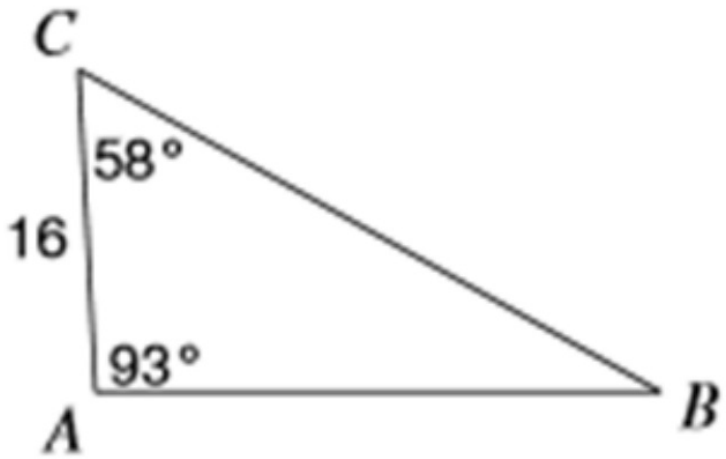
$C = \frac{33 \sin 36}{\sin 129}$

A = 15° a = 11

B = 129° b = 33

C = 36° c = 25.0

3)

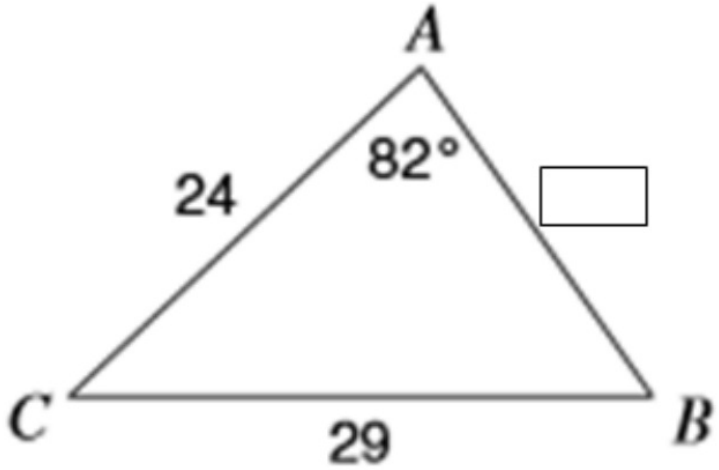


A = 93° a = 33

B = 29° b = 16

C = 58° c = 28

4)

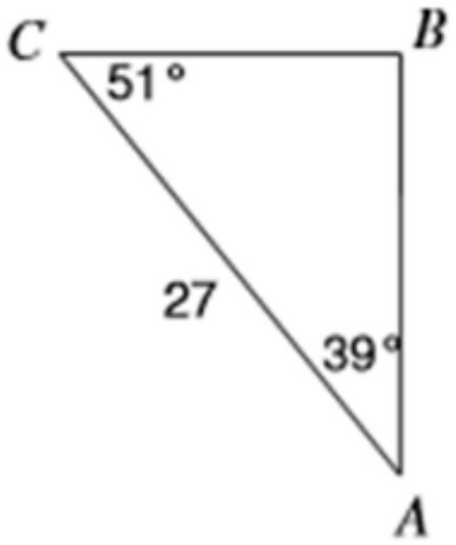


A = 82° a = 29

B = 55° b = 24

C = 43° c = 20.0

5)



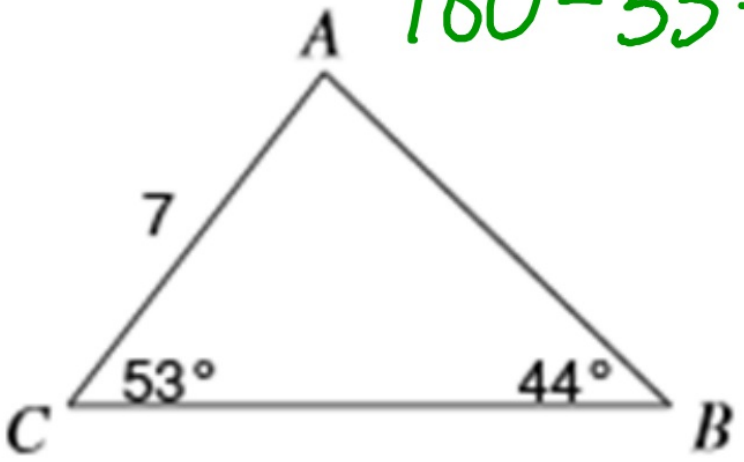
A = 39° a = 17

B = 90° b = 27

C = 51° c = 21

6)

180 − 53 − 44 =



A = 83° a = 10.0

B = 44° b = 7

C = 53° c = 8.0

U3: Trig. Part I

Law of Cosine

Law of Sine

Law of Cosines

SSS

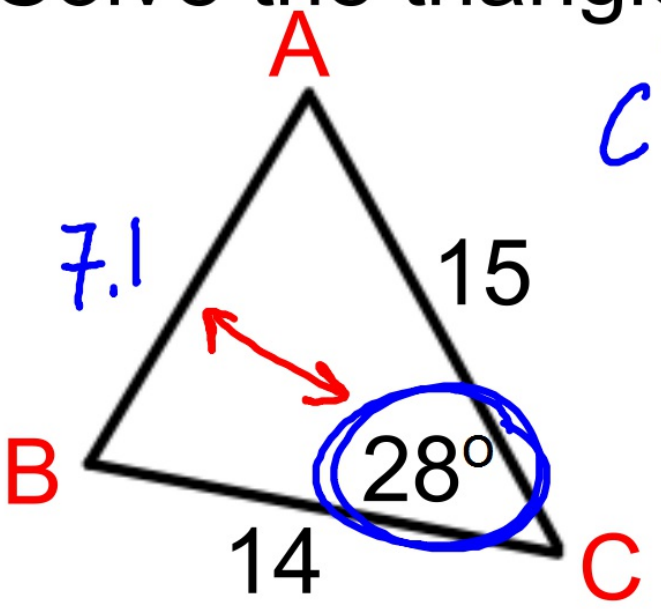
1) Use when given three sides or two sides and the included angle. SAS

$$a^2 = b^2 + c^2 - 2bc \cos A$$

$$b^2 = a^2 + c^2 - 2ac \cos B$$

$$c^2 = a^2 + b^2 - 2ab \cos C$$

Solve the triangle below:



$c^2 = 14^2 + 15^2 - 2(14)15\cos 28$

Type

$C = \sqrt{Ans} = 7.1$

$180 - 28 - 68 = B$

$\frac{\sin A}{14} = \frac{\sin 28}{7.1}$

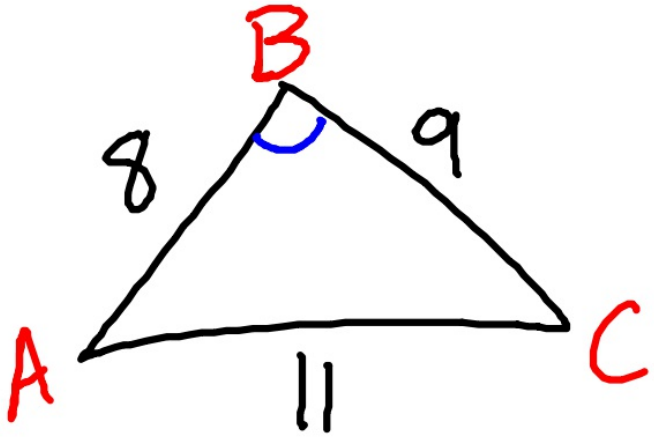
$\sin A = \frac{14\sin 28}{7.1}$

$\sin^{-1}(Ans) = A$

7.1

68°

84°



$$\frac{\sin A}{9} = \frac{\sin 80}{11}$$

$\sin^{-1}(\text{Ans}) = A$

$$11^2 = 9^2 + 8^2 - 2(9)8\cos B$$

Subtract

$180 - 80 - 54 = C$

$$11^2 - 9^2 - 8^2 = -2(9)8\cos B$$

Divide

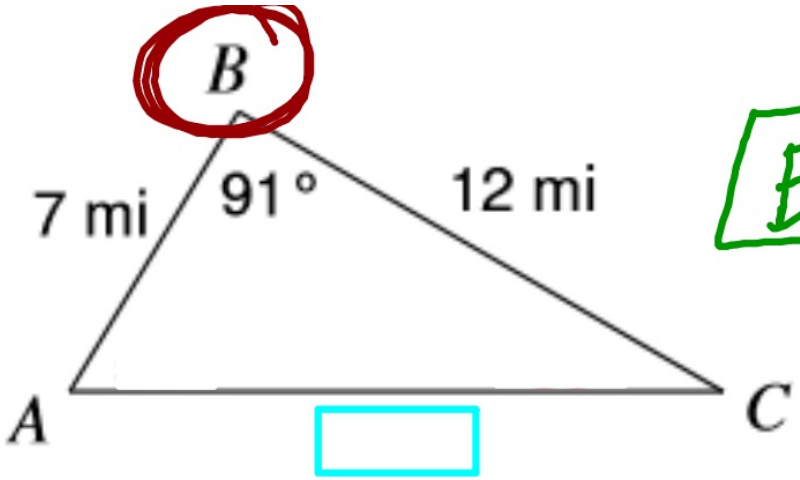
$$\frac{(11^2 - 9^2 - 8^2)}{(-2(9)8)} = \cos B$$

$\cos^{-1}$

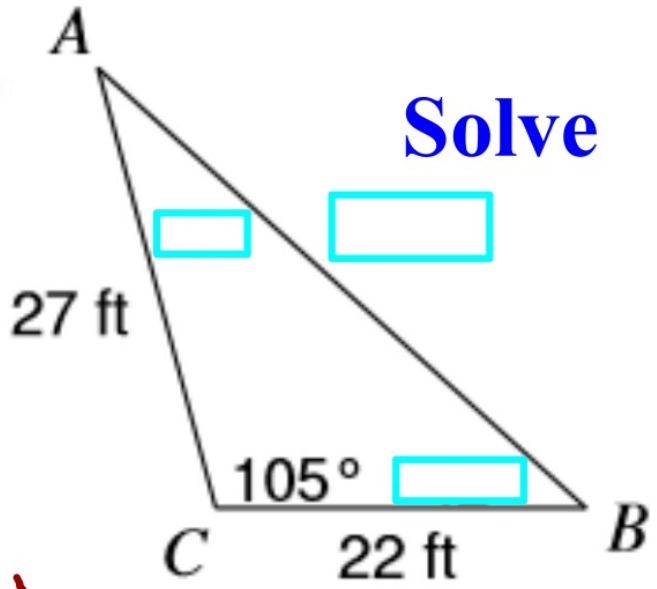
80°

54°

46°



Ex1



Solve

Find b.

$b^2 = 12^2 + 7^2 - 2(12)7\cos 91$

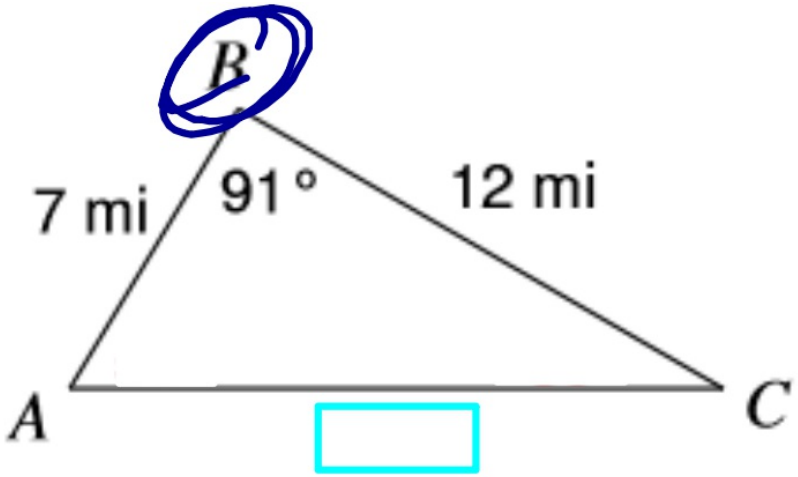
In ΔABC, $a = 14$ cm, $b = 9$ cm, $c = 6$ cm

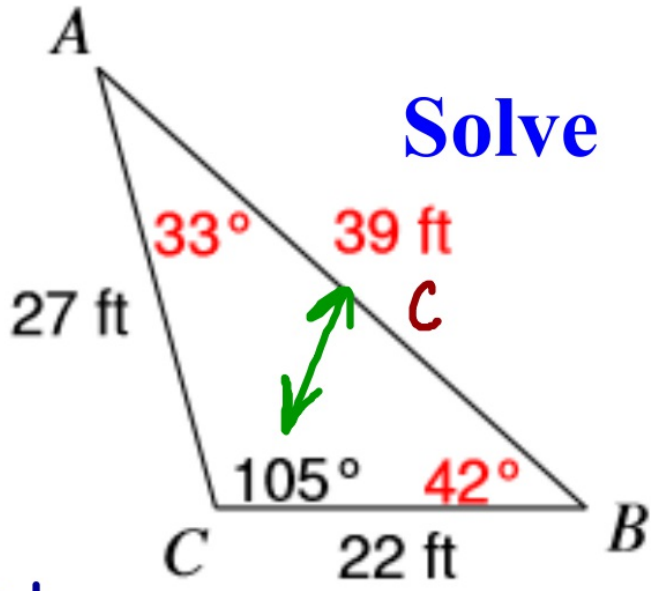
Find A

Ex2

In ΔQRP, $q = 12$ in, $p = 28$ in, $r = 18$ in

Solve





Solve

Find b.

$b^2 = 12^2 + 7^2 - 2(12)7\cos 91$

Type

$b = \sqrt{\text{Ans}}$

$b = 14$

$c^2 = 22^2 + 27^2 - 2(22)27\cos 105$

Type

$c = \sqrt{\text{Ans}}$

$\frac{\sin A}{22} = \frac{\sin 105}{39}$

$\sin^{-1}(\text{Ans})$

19) In ΔABC, $a = 14$ cm, $b = 9$ cm, $c = 6$ cm **Find A**

$m\angle A = 137°$

21) In ΔQRP, $q = 12$ in, $p = 28$ in, $r = 18$ in

$m\angle Q = 17°, m\angle R = 26°, m\angle P = 137°$ **Solve**

$14^2 = 9^2 + 6^2 - 2(9)6\cos A$

-9^2

$\text{Ans} - 6^2$

$\text{Ans}/-2$

$\text{Ans}/9$

$\text{Ans}/6$ $\cos^{-1}(\text{Ans})$

$28^2 = 12^2 + 18^2 - 2(12)18\cos P$

$\cos^{-1}\left(\frac{28^2 - 12^2 - 18^2}{-2(12)18}\right) = P$

Assignment::
WB 302