Name **KEY**

The Law of Sines

Date_____ Period_____

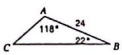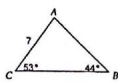**Find each measurement indicated. Round your answers to the nearest tenth.**

1) Find AC

14

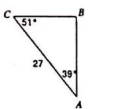2) Find AB

8

3) Find BC

17

4) Find AB
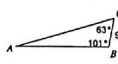
29.1

5) Find BC
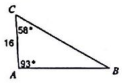
33

6) Find m∠C
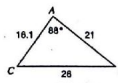
53.8°

7) Find m∠C
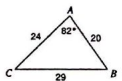
43.1°

8) Find m∠C

28°

9) Find m∠A

15°

10) Find m∠A

15°

OR
∠B = 7.8°, ∠C = 102.2, b = 3.6

Solve each triangle. Round your answers to the nearest tenth.

11) m∠A = 70°, c = 26, a = 25

∠B = 32.2°, ∠C = 77.8°, b = 14.2

12) m∠B = 45°, a = 28, b = 27

13) m∠C = 145°, b = 7, c = 33

∠A = 28°, ∠B = 7°, a = 27

14) m∠B = 73°, a = 7, b = 5

not a △

15) m∠B = 117°, a = 16, b = 38

∠C = 41° ∠A = 22°, c = 28

16) m∠B = 84°, a = 18, b = 9

not a △

17) m∠B = 105°, b = 23, a = 14

∠C = 39°, ∠A = 36°, C = 15

18) m∠C = 13°, m∠A = 22°, c = 9

∠B = 145°, a = 15, b = 22.9

19) m∠B = 80°, m∠C = 54°, b = 11

A = 46°, a = 8, c = 9

20) m∠C = 29°, b = 25, c = 21
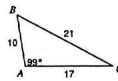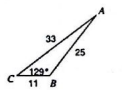
12) ∠C = 87.8°
∠A = 47.2°
c = 38.2
OR
∠C = 2.2°
∠A = 132.8
c = 1.5

State the number of possible triangles that can be formed using the given measurements.

21) m∠C = 63°, b = 9, c = 12

1

22) m∠B = 33°, a = 27, b = 22

2

23) m∠B = 29°, a = 14, b = 19

1

24) m∠B = 95°, b = 24, a = 5

1

25) m∠A = 29°, c = 18, a = 17

2

26) m∠B = 35°, a = 24, b = 6

0

Find the area of each triangle to the nearest tenth.

27)

59.8 cm²

28)

12 km²

29)

8.2 mi²

30)
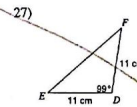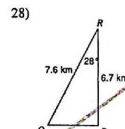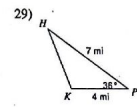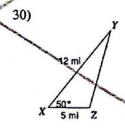
23 mi²

20) A = 115.7
B = 35.3   OR
a = 39

A = 6.3
B = 144.7
a = 4.8

Name_____

The Law of Cosines

Date_____ Period_____

Find each measurement indicated. Round your answers to the nearest tenth.
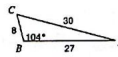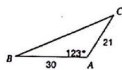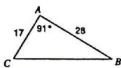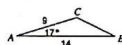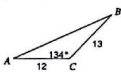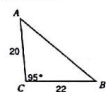
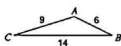1) Find AB
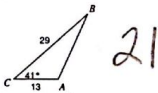
21

2) Find BC

45

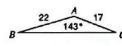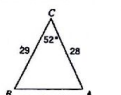3) Find BC

33

4) Find BC

6

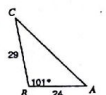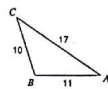5) Find AB

23

6) Find AB

31

7) Find m∠A

$137°$

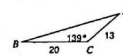8) Find m∠B

$16°$

9) Find m∠A

$66°$

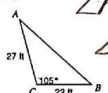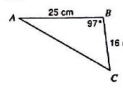10) Find m∠C

$35°$

11) Find m∠A

$34°$

12) Find m∠A

$25°$

Solve each triangle. Round your answers to the nearest tenth.

13)

$∠A = 33°$
$∠B = 42°$
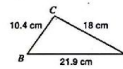$C = 39$

14)

$∠A = 30.5°$
$∠C = 52.5°$
$b = 31.3$

15)
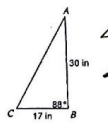
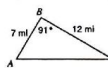$∠A = 30°$
$∠C = 62°$
$b = 34$
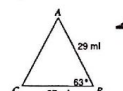
16)

$∠C = 97.3°$
$∠A = 28.1°$
$∠B = 54.6°$

17)

$∠C = 30°$
$∠A = 59°$
$b = 14$

18)

$∠A = 55.2°$
$∠C = 61.8°$
$b = 29.3$

19) In $\triangle ABC$, $a = 14$ cm, $b = 9$ cm, $c = 6$ cm

$∠A = 137°, ∠B = 26°, ∠C = 17°$

20) In $\triangle XYZ$, $m∠X = 138°$, $y = 15$ in, $z = 25$ in

21) In $\triangle QRP$, $q = 12$ in, $p = 28$ in, $r = 18$ in

$∠Q = 17°, ∠R = 26°, ∠P = 137°$

22) In $\triangle QRP$, $p = 28$ km, $q = 17$ km, $r = 15$ km

23) In $\triangle DEF$, $e = 16$ yd, $d = 12$ yd, $f = 17$ yd

$∠D = 42.5°, ∠E = 64.3°, ∠F = 73.2°$

24) In $\triangle RPQ$, $p = 18$ mi, $m∠R = 17°$, $q = 28$ mi

20) $∠Y = 15.5°$
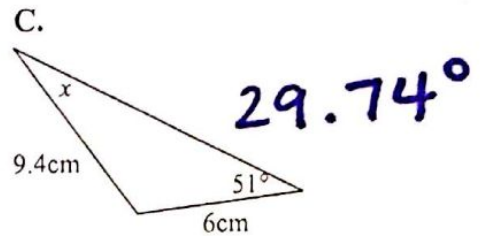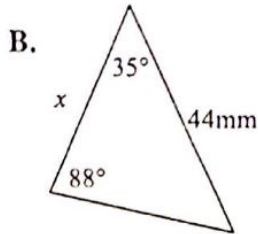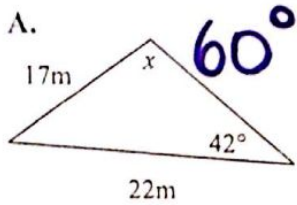$∠Z = 26.5°$
$X = 37.5$

22) $∠Q = 31°$
$∠R = 27°$
$∠P = 122°$

24) $∠P = 26°$
$∠Q = 137°$
$r = 12$

KEY

LAW OF SINES PRACTICE

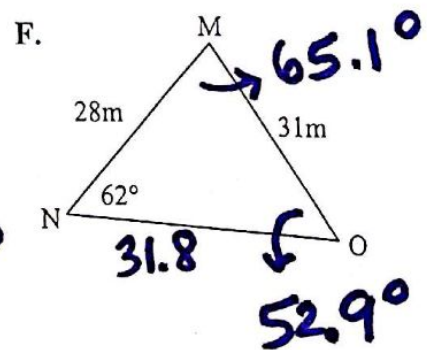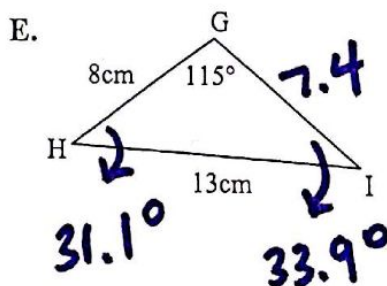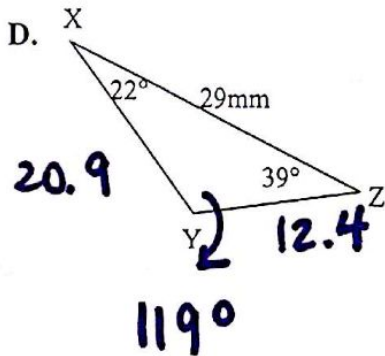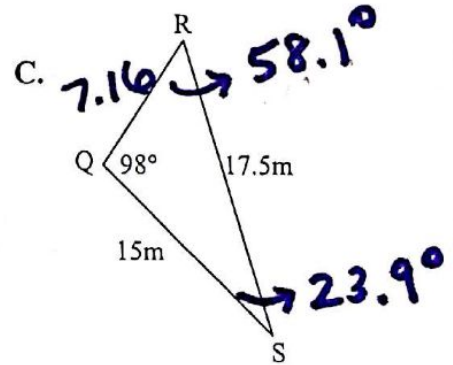1. Solve for the unknown in each triangle. Round to the nearest tenth.
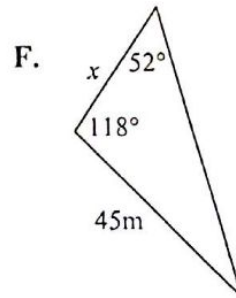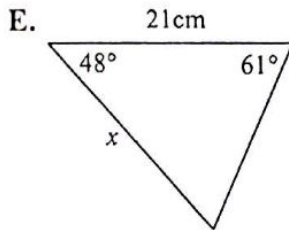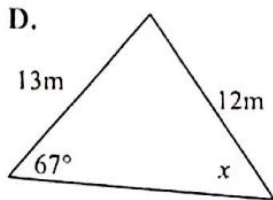
A. 17m, x, **60°**, 42°, 22m

B. 35°, x, 44mm, 88°, **36.92**

C. x, 9.4cm, **29.74°**, 51°, 6cm

D. 13m, 12m, 67°, x, **85.72°**

E. 21cm, 48°, 61°, x, **19.43**

F. x, 52°, 118°, 45m, **9.92**

2. Solve for **all** missing sides and angles in each triangle. Round to the nearest tenth.

A. B, **8.8**, A, 51°, 71°, **8.1**, 9.8cm, **58°**, C

B. J, 42°, **40.7**, 50m, K, 84°, **54°**, **33.6**, L

C. R, **7.16**, **58.1°**, Q, 98°, 17.5m, 15m, **23.9°**, S

D. X, 22°, 29mm, **20.9**, 39°, Z, Y, **12.4**, **119°**

E. G, 8cm, 115°, **7.4**, H, 13cm, I, **31.1°**, **33.9°**

F. M, **65.1°**, 28m, 31m, N, 62°, **31.8**, O, **52.9°**
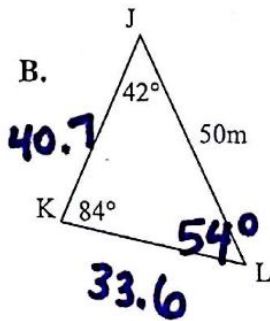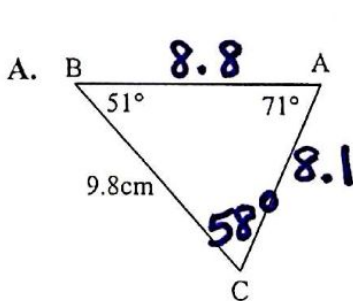
$$\frac{\sin 71}{9.8} = \frac{\sin 58}{x} \qquad \frac{\sin 71}{9.8} = \frac{\sin 51}{x}$$

LAW OF COSINES WORKSHEET

1. Solve for the unknown in each triangle. Round to the nearest hundredth.

A. **14.7**

x 17m
42°
22m

B. **47°**
θ
39mm 47mm
35mm

C. **104°**
13cm
9.4cm θ
7cm

D. **17**
23m x
47°
20m

E. 55cm
61°
x 50cm
53

F. 4.9m
9.1m
8.3m θ **32°**
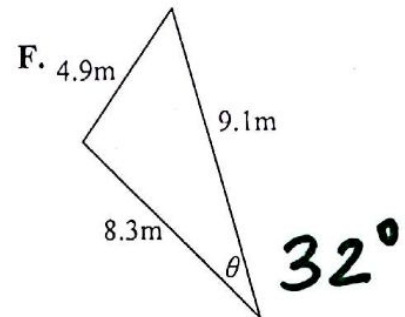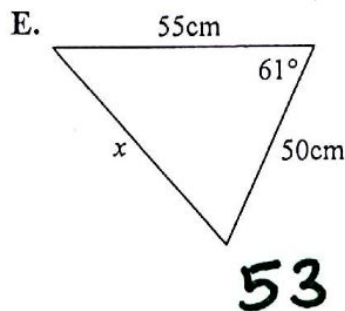
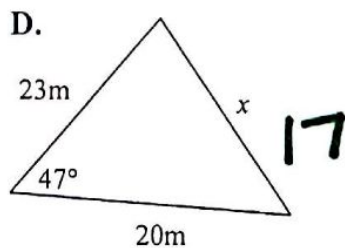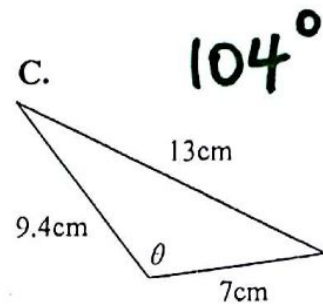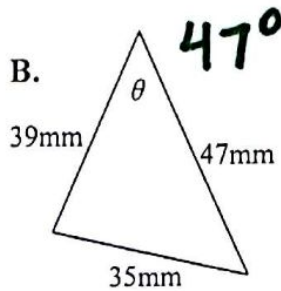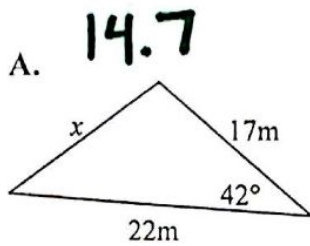2. Solve for **all** missing sides and angles in each triangle. Round to the nearest hundredth. ** USE PROPER VARIABLES

A. $\triangle XYZ$: $x = 29m, y = 15m, \angle Z = 122°$

z = 39   X = 39°   Y = 19°

B. $\triangle GHI$: $g = 13cm, h = 8cm, i = 15cm$

G = 60°   H = 32°   I = 88°

C. $\triangle MNO$: $n = 31m, o = 28m, \angle M = 62°$

m = 31   N = 64°   O = 54°

3. A triangle has sides equal to 4 m, 11 m and 8 m. Find its angles (round answers to nearest tenth)

16°
130°
34°

Scanned by CamScanner