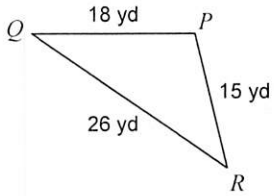
SM3 Name_____

Section 11.5 Law of Cosines

Date_____ Period____

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

1)



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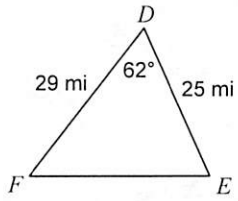
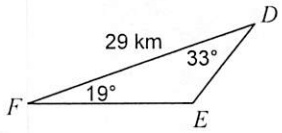


3)



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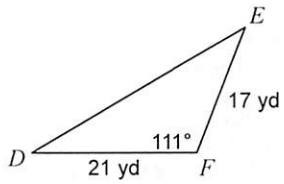

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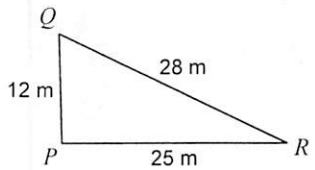

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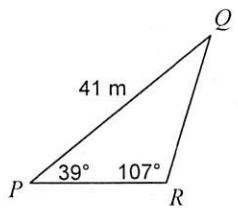

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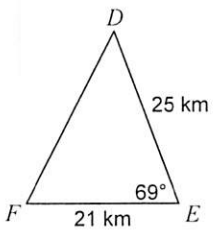

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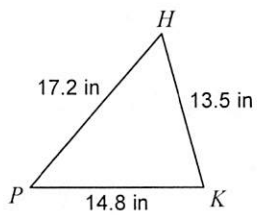

9) In $\triangle XYZ$, $y = 24$ ft, $x = 28$ ft, $z = 22$ ft

10) In $\triangle QRP$, $r = 14$ cm, $m\angle Q = 126.4°$, $p = 24$ cm

11) In $\triangle YZX$, $m\angle Y = 85°$, $x = 14$ ft, $y = 17$ ft

12) In $\triangle CAB$, $b = 9$ yd, $m\angle C = 123°$, $a = 18$ yd

13) In $\triangle STR$, $t = 21$ m, $r = 17$ m, $m\angle S = 90°$

14) In $\triangle PQR$, $m\angle P = 128°$, $m\angle Q = 12°$, $r = 31$ km

15) In $\triangle KHP$, $m\angle K = 121°$, $p = 27$ mi, $h = 12$ mi

16) In $\triangle PKH$, $k = 26$ cm, $h = 18$ cm, $p = 24$ cm

17) Two sides and a diagonal of a parallelogram are 7, 9, and 15 in respectively. Find the measures of the angles of the parallelogram.

18) A baseball player in center field is playing approximately 330 feet from the television camera that is behind home plate. A batter hit a fly ball that goes to the wall that is 420 feet from the camera. Approximate the number of feet the center fielder had to run to make the catch if the camera turned 9 degrees following the play.

19) A bicycle race follows a triangular course. The three legs of the course are in order, 2.3 km., 5.9 km. and 6.2 km. Find the angle between the starting leg and the finishing leg to the nearest degree.

20) A boat leaves Kingston and heads due east for 25 km. At the same time a second boat travels at a direction of 30° south of east from Kingston for 15 km. How far apart are the boats when they reach their destinations.

SM3 Name_____

Section 11.5 Law of Cosines

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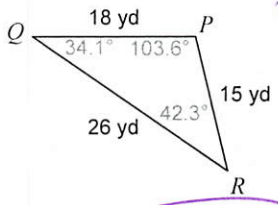
Solve each triangle. Round your answers to the nearest tenth.

1)



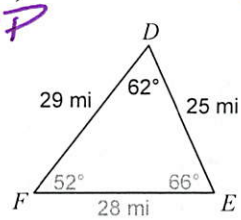
$26^2 = 18^2 + 15^2 - 2(18)(15)\cos P$

$P = 104°$

$\frac{\sin 104}{26} = \frac{\sin R}{18}$

$Q = 34°$ $R = 42°$

2)



$d^2 = 29^2 + 25^2 - 2(29)(25)\cos 62°$

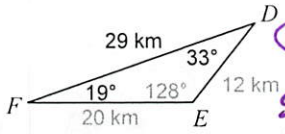
$d = 28$ mi

$\frac{\sin 62}{28} = \frac{\sin E}{29}$

$E = 66°$

$F = 52°$

3)



$\frac{\sin 128}{29} = \frac{\sin 19}{f}$

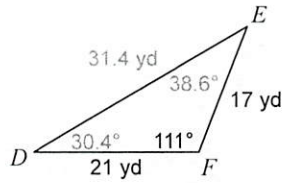
$E = 128°$

$\frac{\sin 128}{29} = \frac{\sin 33}{d}$

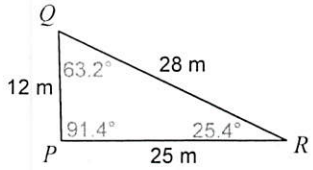
$d \approx 20$ km

$f \approx 12$ km

4)



5)



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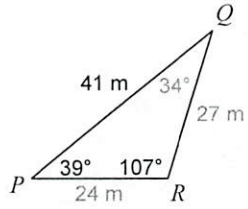
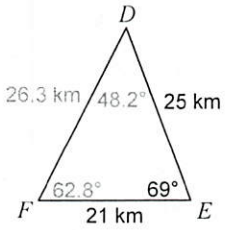
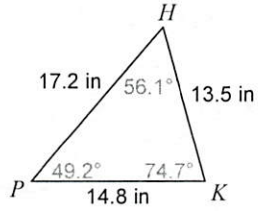


7)



8)



9) In $\triangle XYZ$, $y = 24$ ft, $x = 28$ ft, $z = 22$ ft

$m\angle X = 74.9°$, $m\angle Y = 55.8°$, $m\angle Z = 49.3°$

10) In $\triangle QRP$, $r = 14$ cm, $m\angle Q = 126.4°$, $p = 24$ cm

$m\angle R = 19.2°$, $m\angle P = 34.4°$, $q = 34.2$ cm

11) In $\triangle YZX$, $m\angle Y = 85°$, $x = 14$ ft, $y = 17$ ft

$m\angle Z = 39.9°$, $m\angle X = 55.1°$, $z = 10.9$ ft

12) In $\triangle CAB$, $b = 9$ yd, $m\angle C = 123°$, $a = 18$ yd

$m\angle A = 38.7°$, $m\angle B = 18.3°$, $c = 24.1$ yd

13) In $\triangle STR$, $t = 21$ m, $r = 17$ m, $m\angle S = 90°$

$m\angle T = 51°$, $m\angle R = 39°$, $s = 27$ m

14) In $\triangle PQR$, $m\angle P = 128°$, $m\angle Q = 12°$, $r = 31$ km

$m\angle R = 40°$, $p = 38$ km, $q = 10$ km

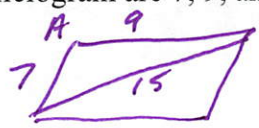
15) In $\triangle KHP$, $m\angle K = 121°$, $p = 27$ mi, $h = 12$ mi

$m\angle H = 17.2°$, $m\angle P = 41.8°$, $k = 34.7$ mi

16) In $\triangle PKH$, $k = 26$ cm, $h = 18$ cm, $p = 24$ cm

$m\angle P = 63°$, $m\angle K = 75°$, $m\angle H = 42°$

17) Two sides and a diagonal of a parallelogram are 7, 9, and 15 in respectively. Find the measures of the angles of the parallelogram.

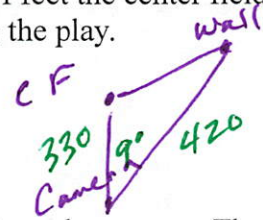


$15^2 = 7^2 + 9^2 - 2(7)(9)\cos A$

$A \approx 139°$

139° & 41°

18) A baseball player in center field is playing approximately 330 feet from the television camera that is behind home plate. A batter hit a fly ball that goes to the wall that is 420 feet from the camera. Approximate the number of feet the center fielder had to run to make the catch if the camera turned 9 degrees following the play.

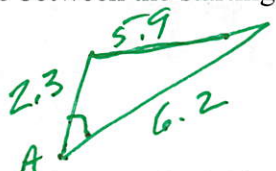


$x^2 = 330^2 + 420^2 - 2(330)(420)\cos 9°$

89 ft

19) A bicycle race follows a triangular course. The three legs of the course are in order, 2.3 km., 5.9 km. and 6.2 km. Find the angle between the starting leg and the finishing leg to the nearest degree.

72 degrees

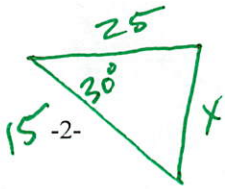


$5.9^2 = 2.3^2 + 6.2^2 - 2(2.3)(6.2)\cos A$

72°

20) A boat leaves Kingston and heads due east for 25 km. At the same time a second boat travels at a direction of 30° south of east from Kingston for 15 km. How far apart are the boats when they reach their destinations.

14.2 km



$x^2 = 25^2 + 15^2 - 2(25)(15)\cos 30°$

14.2 km