Unit 2 Day 12: Review

Obtuse Angles

Obtuse angle - $90° \le \theta \le 180°$

Supplementary Angles A+B=180°

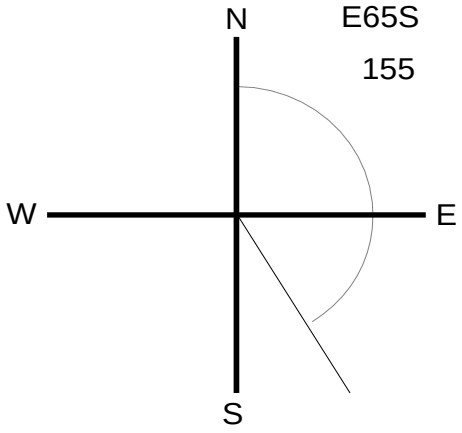
$$sinA = sinB, \qquad cosA = -cosB, \qquad tanA = -tanB$$

The primary trigonometric ratios of an angle, θ, in standard position are defined in terms of the coordinates of a point, (x, y), on the terminal arm, as follows:

$\sin\theta = \frac{y}{r}$ $\cos\theta = \frac{x}{r}$ $\tan\theta = \frac{y}{x}$ where $r = \sqrt{x^2 + y^2}$

Bearing and Directions

Bearings - 050°, Directions – N50°E



Types of Problems

Directions,
Solve a Triangle
Area

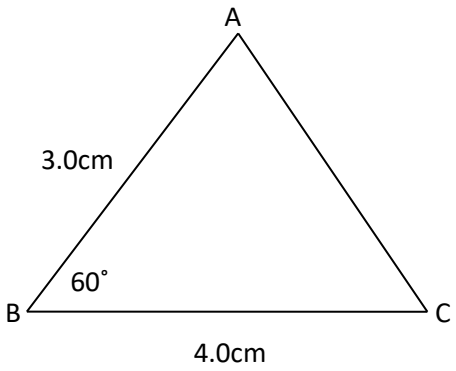
Practice Drawing Triangles.

Draw the following triangles, state unknowns and approach to solving (You do not need to solve):

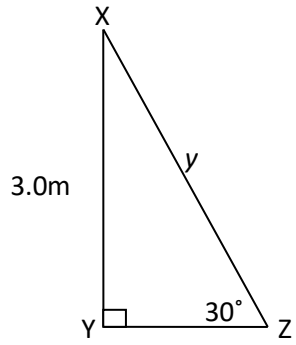
1. Triangle ABC, where a=8m, b=4m, A=90°
2. Triangle XYZ, where X=108°, z=27mm, y=12mm.
3. Triangle PQR, where P=43°, R=118°, q=50m.

Example #1 : Calculate the length of the unknown side in each triangle.

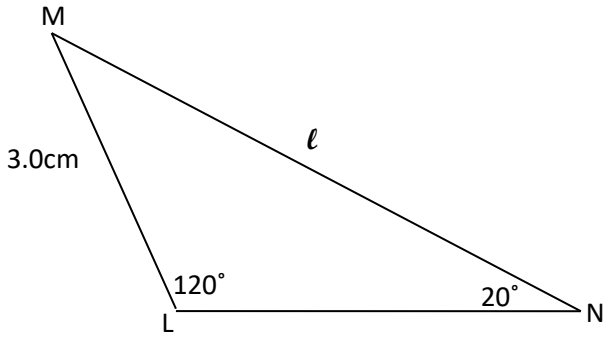
a.



b.

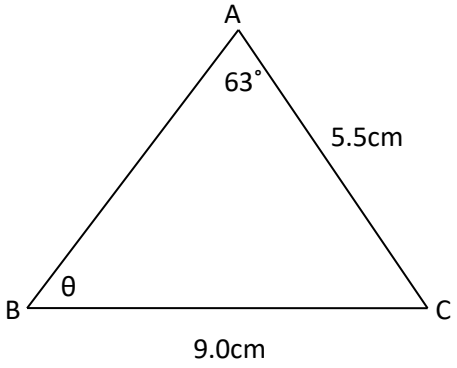


c.

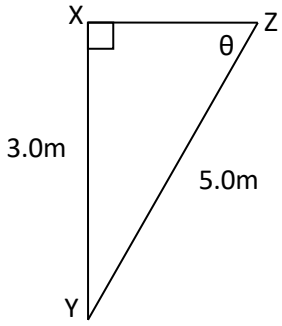


Example #2 : Calculate the indicated angle in each triangle.

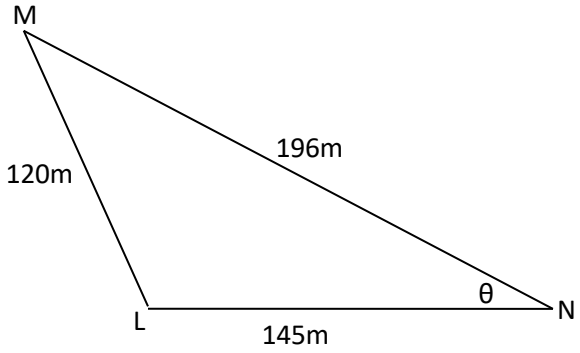
a.



b.



c.



Example #3

The terminal arm of an angle, θ, in standard position goes through A(-2, 5).

a) Determine the length of OA (The hypotenuse, r)

b) Find the three primary trig ratios, rounded to 3 decimal places.

c) Determine the value of θ.

Example #4

Determine the value(s) of all possible angles.

a) $sinA = 0.732$ b) $cosB = 0.495$ c) $tanC = -0.391$

d) $tanD = 4.721$ e) $sinE = 0.198$ f) $cosF = -0.707$

Answers: Drawing $\Delta's$ 1. B=30°, C=60° 2. x=32.8 mm, Y=20°, Z=52° 3. Q=19°, r=135m, p=104.7m

Ex. 1 a) 3.6 cm, b) 6 m, c) 7.6cm **Ex. 2** a) 33° b) 37° c) 38° **Ex. 3** a) $\sqrt{29}$ b) $sin\,\theta = 0.928$ $cos\,\theta = -0.371$ $tan\,\theta = -2.5$ c) $\theta = 112°$ **Ex. 4** a) 133° OR 47° b) 60° c) 159° d) 78° e) 11° OR 169° f) 135°

U2D12 Review: page 132 #1-12

Example #5 **CHALLENGE QUESTION**

A boat is proceeding on a bearing of 045˚ at 12 km/hr. At 3:00PM the captain sees a navigation buoy at 020˚. He sees the same buoy at 230˚ at 4:15. How many km's is the boat from the buoy at 4:15PM?

a. Draw the figure
b. Determine what Trig Rules to use
c. Solve for unknown.
