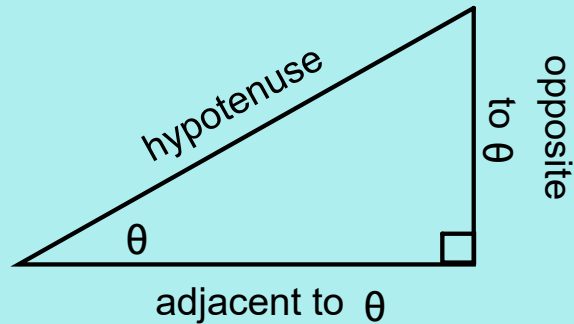


For any angle of interest (θ), there are three (3) primary trigonometric ratios.

$$\text{sine of } \theta = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\text{cosine of } \theta = \frac{\text{adjacent}}{\text{hypotenuse}}$$

$$\text{tangent of } \theta = \frac{\text{opposite}}{\text{adjacent}}$$



S o h C a h T o a

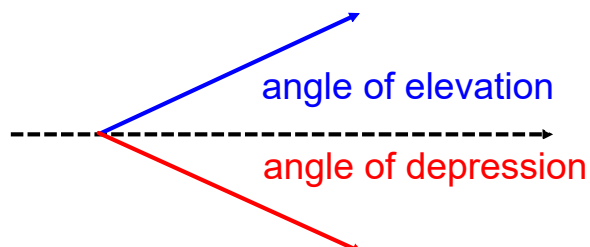
Dec 7-9:58 PM

Solving Trigonometric Problems

Nov. 25/2019

Angle of Elevation (or Inclination): the angle measured above the horizontal.

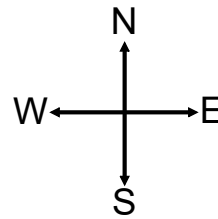
Angle of Depression (or Declination): the angle measured below the horizontal.



Dec 9-9:41 PM

Compass Directions & Bearings

(a) A compass direction is measured from N, S, E, or W. The angles are always between 0° and 90° .

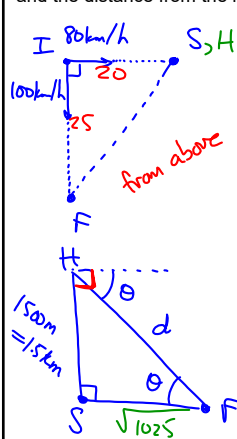


(b) A bearing is always measured from north, in a clockwise direction. The values are from 000 to 360 (but less than 360).



Jun 1-9:34 PM

Ex.1 Two roads intersect at 90° . At 9:00, two cars leave the intersection on different roads at speeds of 80 km/h and 100 km/h. At 9:15, a traffic helicopter is right above the slower car, at a height of 1500 m. Determine the angle of depression and the distance from the helicopter to the faster car.



$0.25h = 150m$

$$d_s = vt$$

$$= 80(0.25)$$

$$= 20$$

$$d_f = 100(0.25)$$

$$= 25$$

$$SF^2 = 20^2 + 25^2$$

$$SF = \sqrt{1025}, SF > 0$$

$$\tan \theta = \frac{1.5}{\sqrt{1025}}$$

$$\theta \doteq 2.6824^\circ$$

$$d^2 = 1.5^2 + 1025$$

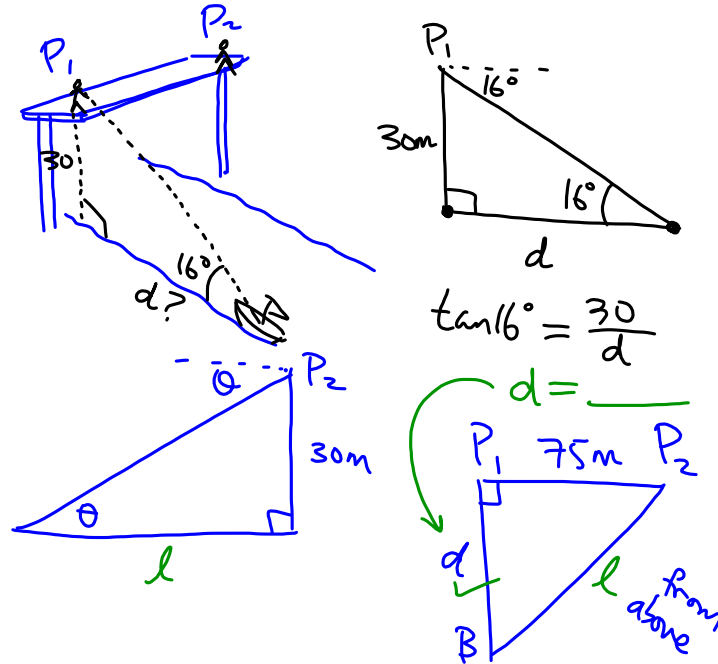
$$d = 32.1, d > 0$$

\therefore the faster car is 32.1 km from the helicopter at an angle of depression of 2.7° .

Apr 19-9:13 PM

Ex.2 Two people are on a bridge that is 30 m high, and they are standing 75 m apart. One person looks straight out from the bridge (i.e., at 90°) and sees a boat, measuring an angle of depression of 16° .

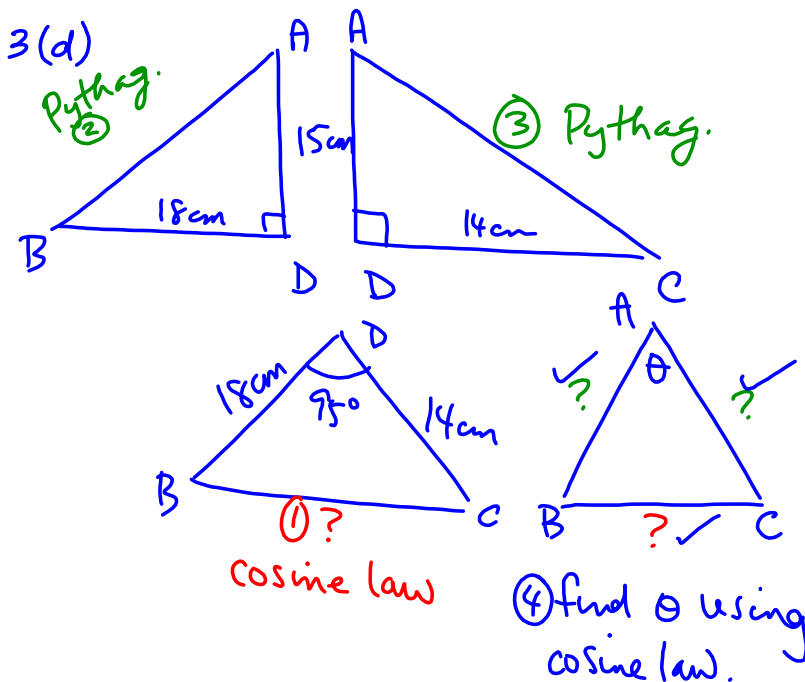
- (a) How far is the boat from the bridge?
- (b) What angle of depression does the 2nd person measure?



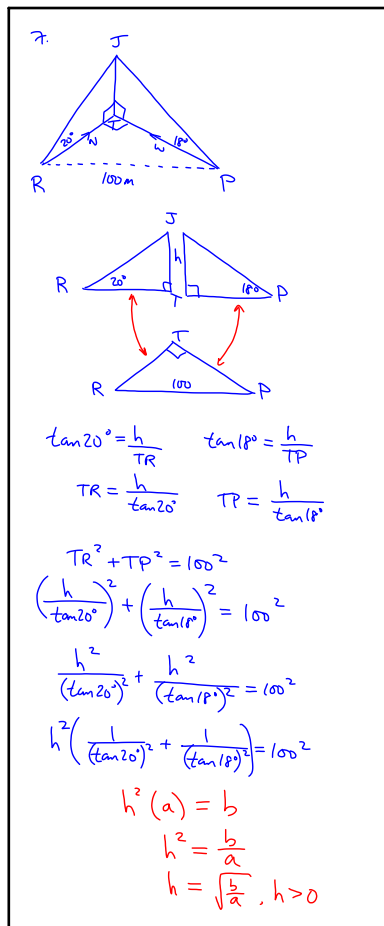
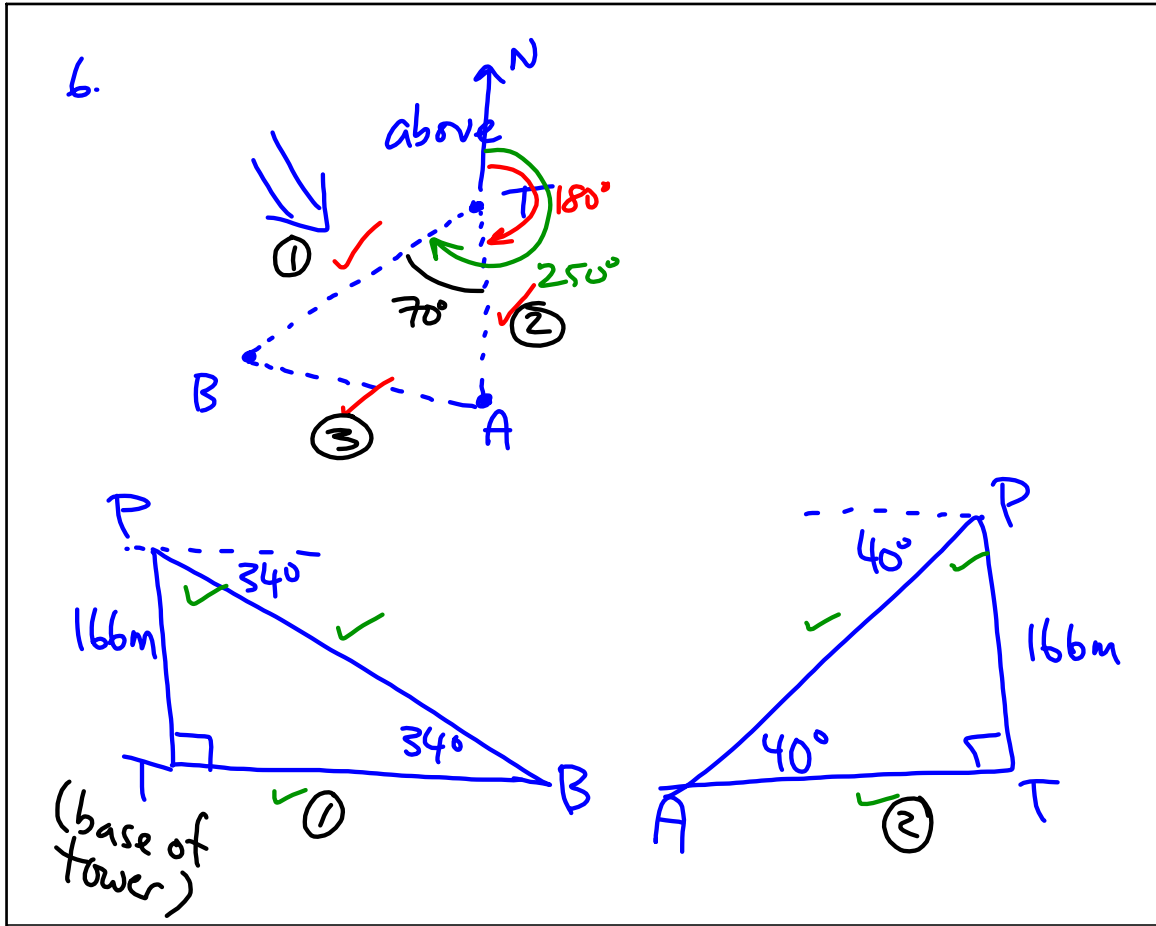
Apr 19-9:19 PM

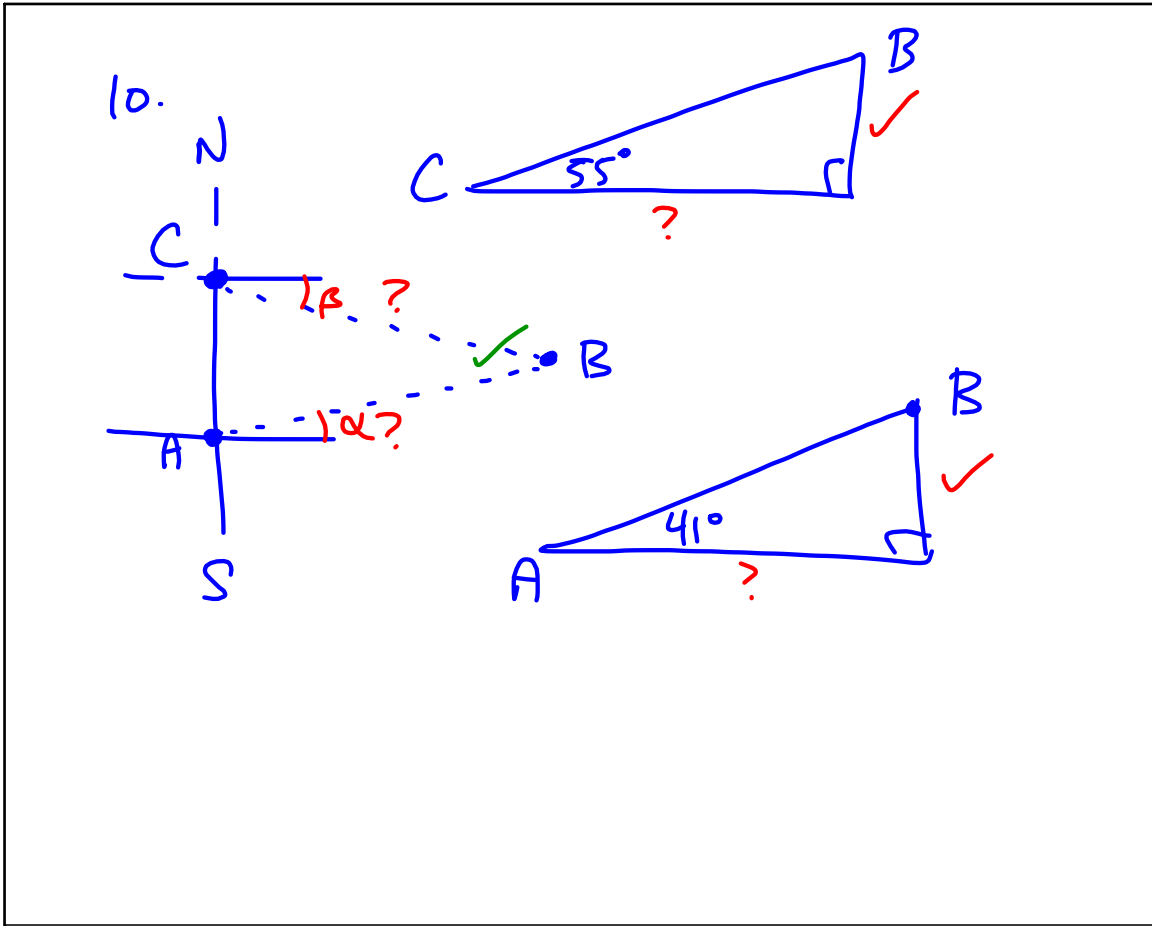
Assigned Work:

p.332 # 3acd, 4, 6, 7, 9, 10, 15

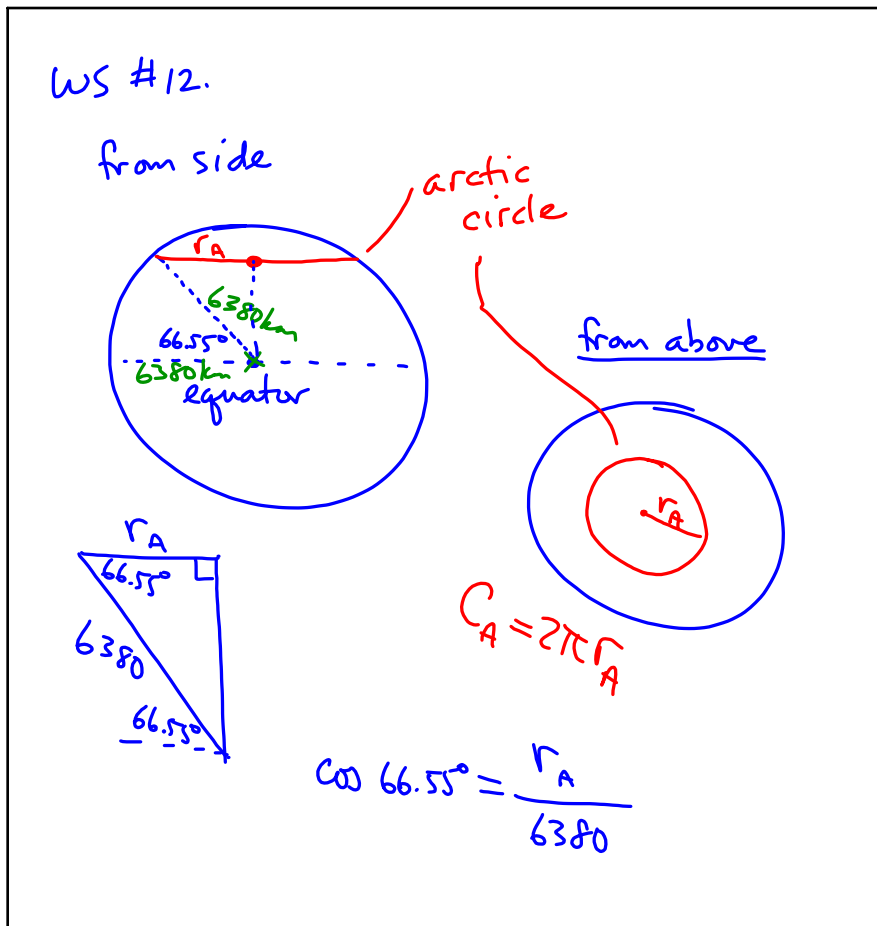


Dec 10-10:43 PM





Nov 26-1:21 PM



Nov 26-1:28 PM