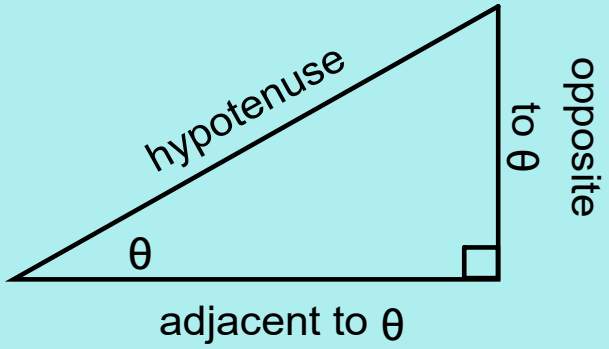
For any angle of interest (θ), there are three (3) primary trigonometric ratios.

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

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

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



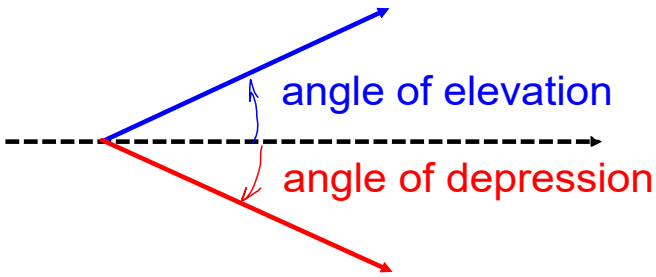
S o h C a h T o a

Dec 7-9:58 PM

Solving Trigonometric Problems

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

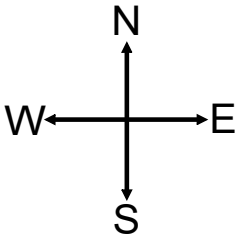
Angle of Depression (or Declination): the angle measured below the horizontal.



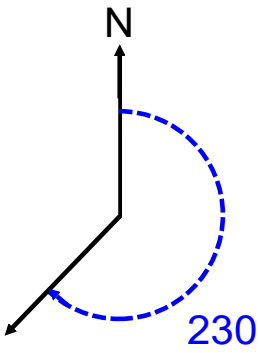
Dec 9-9:41 PM

Compass Directions & Bearings

(a) A compass direction is measured from N, S, E, or W. The angles are traditionally between 0° and 45°.

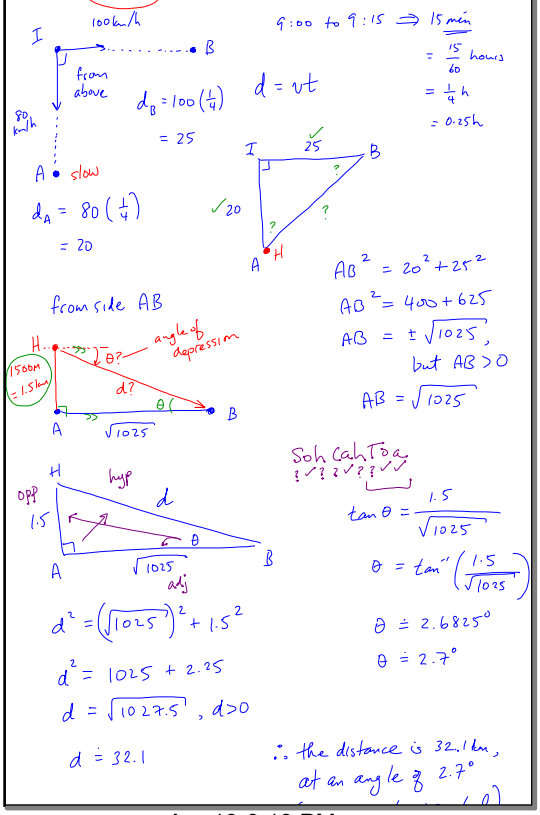


(b) A bearing is always measured from north, in a clockwise direction. The values are from 000 to 360 (but less than 360).



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 directly 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.

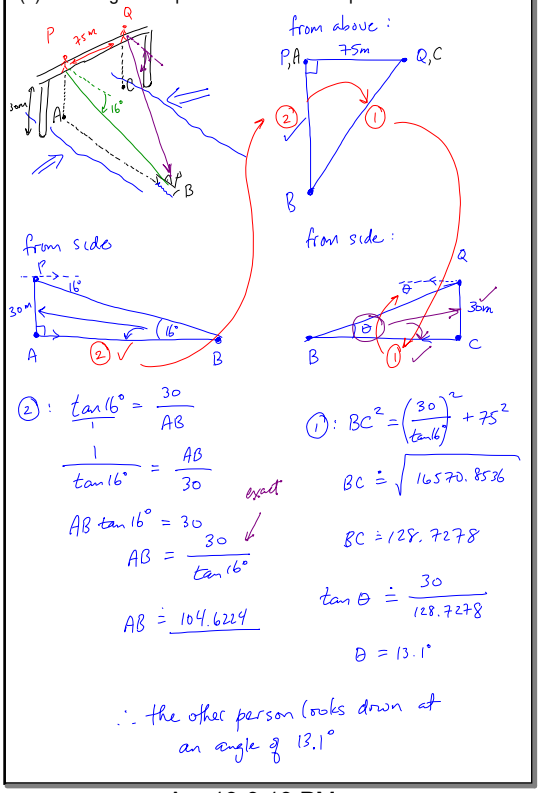


Apr 19-9:13 PM

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.274 # 11, 12, 13, 16, 19

Dec 10-10:43 PM