June 2/2010

1. Slope-Angle Relationship

(4, 6)

(6, 6)

θ_1

θ_2

6 opp

6 opp

(0,0)

(2,0)

4 adj

4 adj.
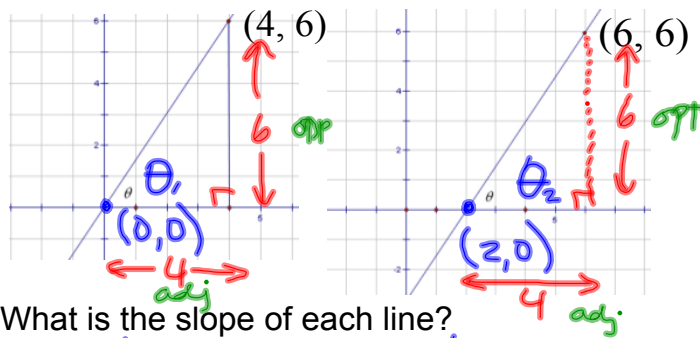
What is the slope of each line?

$$M_1 = \frac{6}{4}$$

$$M_2 = \frac{6}{4}$$

$$m_1 = \frac{3}{2}$$

$$M_2 = \frac{3}{2}$$

How would we determine θ for each line?

$$\tan \theta_1 = \frac{6}{4}$$

$$\tan \theta_2 = \frac{6}{4}$$

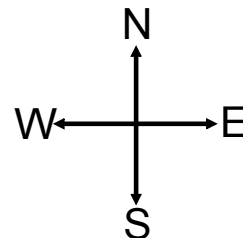$$\tan \theta_1 = \frac{3}{2}$$

$$\tan \theta_2 = \frac{3}{2}$$

We can conclude that there is a relationship betwen slope and the angle that a line makes with the x-axis.

$$\tan(\theta) = m$$

May 22 - 4:46 PM

2. Compass Directions & Bearings

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

N

W ← → E

S

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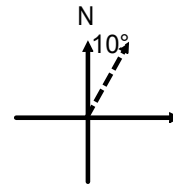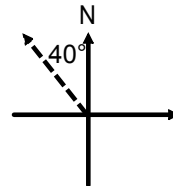
N

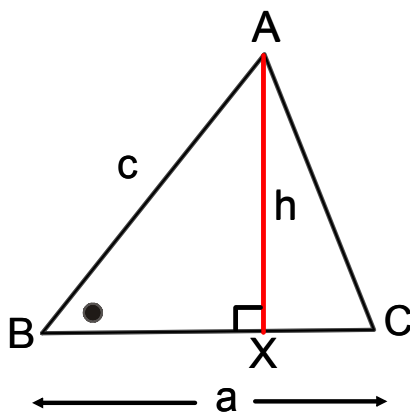| Compass Direction	Bearing	Path
N10°E	010	
N40°W	320	
SW	225	

Start shift
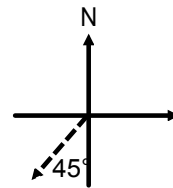
3. Area of a Triangle

In $\triangle ABX$, $\quad \dfrac{h}{c} = \sin B$

$$h = c(\sin B)$$

$$\text{Area} = \tfrac{1}{2}ah$$
$$= \tfrac{1}{2}ac\sin B$$

$\therefore$ if we have SAS for any triangle, we can determine the area.

$$\text{Area}_{\triangle ABC} = \tfrac{1}{2}\,a\,c\,\sin B$$

Ex.1

A robot is programmed to move along this path:

1. 5m at a bearing of 110, then
2. 8m at a bearing of 210, then
3. 9m at a bearing of 260.

Draw a diagram of the robot's path.

How would you determine the robot's final
location (bearing and distance)?

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1. 5m at a bearing of 110, then
2. 8m at a bearing of 210, then
3. 9m at a bearing of 260.

Step 1 - first leg

Step 2 - second leg

Step 3 - third leg

Step 4 - overall change
in position

Step 5 - create extra
triangle(s)

Assigned Work (review for test):

p. 515 # 3, (4), 5, 11 - (14), 15, 17, (18)

p. 580 # 3 - 9, 11, 12
   4, 6, 9

By Thursday, be prepared to take up:
- # 4, 14, 18 from the work starting on p. 515
- # 4, 6, 9 from the work starting on p. 580.

You will have Thursday to work on the other questions.