

Partner Math!

NAME: HM2

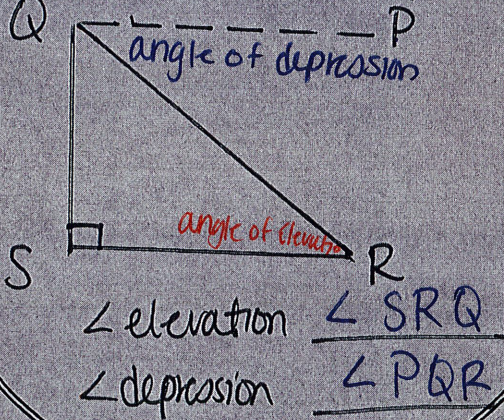
8-5-8.7 Review

PERIOD: _____

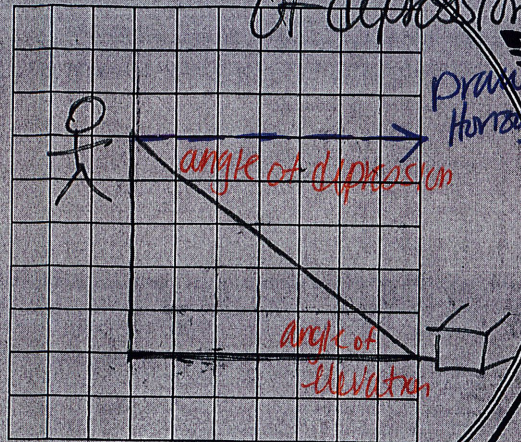
DATE: _____

1st TASK: NUMBER

Name the angle of elevation and depression



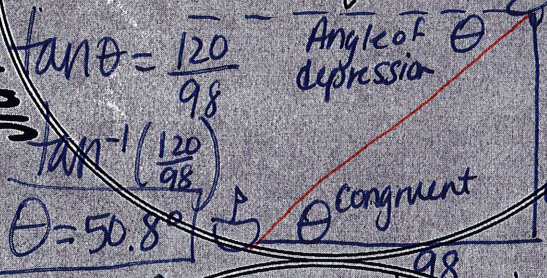
Draw the angle of depression



2nd TASK: NUMBER

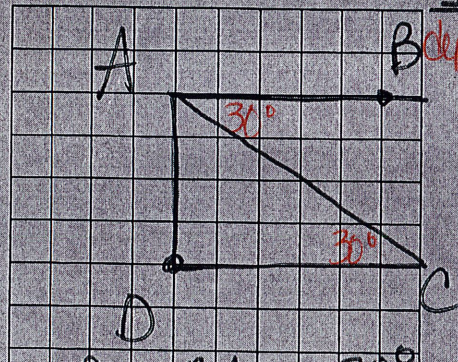
3rd TASK: NUMBER

A helicopter is 120 feet above ground. Sees a ship that is 98 feet from shore. What is the helicopter's angle of depression to the nearest whole degree. Draw a picture.



120 ft
The helicopter's angle of depression is 50.8° .

if what is $\angle BAC$ called

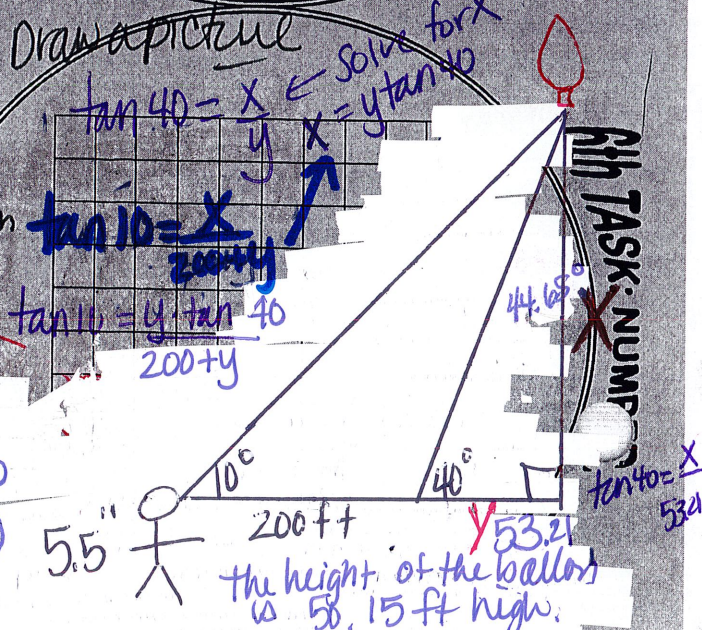


if $\angle BAC = 30^\circ$
What is $\angle DCA = 30^\circ$
What is $\angle DCA$ called = angle of elevation

4th TASK: NUMBER

5th TASK: NUMBER

Angie sees a hot air balloon in the sky from her spot on the ground. The angle from Angie to the balloon is 45° . If she steps back 200 feet, the new angle of elevation is 10° . If Angie is 5.5 ft tall, how far off the ground is the balloon.



$$\tan 10(200+y) = y \cdot \tan 40$$

$$\tan 10 \cdot 200 + y \tan 10 = y \tan 40$$

$$\tan(10) \cdot 200 = y \tan 40 - y \tan 10$$

$$35.27 = y(\tan 40 - \tan 10)$$

$$\tan 40 - \tan 10 = 53 = y$$

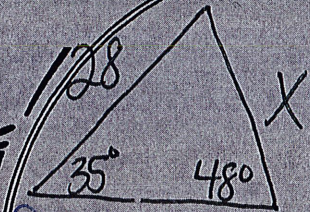
5.5" stick figure
200 + y
the height of the balloon is 53.15 ft high.

6th TASK: NUMBER

Partner Math, continued

7th TASK: NUMBER

Find x



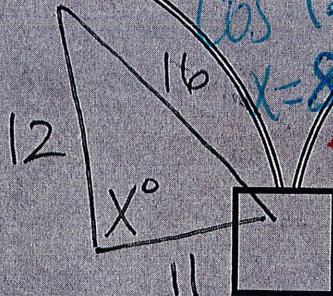
$$\frac{\sin 35}{x} = \frac{\sin 48}{28}$$

$$x \cdot \sin 48 = 28 \sin 35$$

$$\frac{x \cdot \sin 48}{\sin 48} = \frac{28 \sin 35}{\sin 48}$$

$$x = 21.6$$

Find x



$$16^2 = 11^2 + 12^2 - 2(11)(12)\cos X$$

$$256 = 121 + 144 - 264 \cos X$$

$$256 = 265 - 264 \cos X$$

$$-9 = -264 \cos X$$

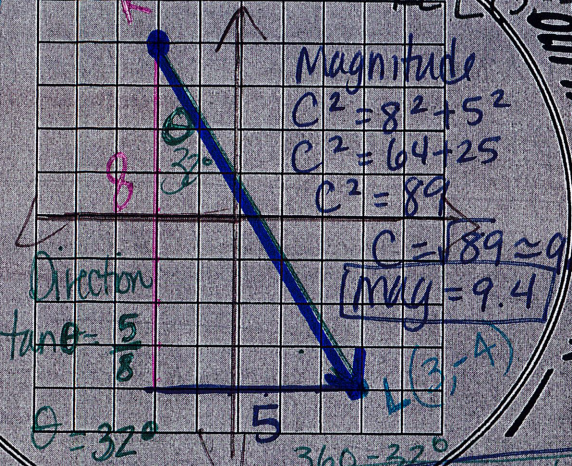
$$\frac{-9}{-264} = \frac{-264 \cos X}{-264}$$

$$.0339 = \cos X$$

$$\cos^{-1}(.0339) = X$$

$$X = 88^\circ$$

Find magnitude and direction

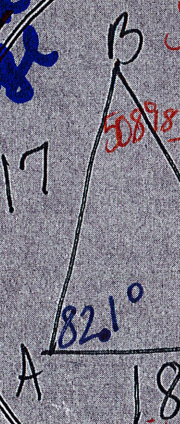


8th TASK: NUMBER

Look next page

9th TASK: NUMBER

Solve the Δ



$$\frac{\sin B}{18} = \frac{\sin 82.1}{23}$$

$$.5898 \cdot \sin 82.1 = \frac{23 \cdot \sin B}{23}$$

$$.7752 = \sin B$$

$$\sin^{-1}(.7752) = M\angle B = 50.8^\circ$$

$$M\angle A = 82.1^\circ$$

$$M\angle C = 47.1^\circ$$

$$23^2 = 17^2 + 18^2 - 2(17)(18)\cos A$$

$$529 = 289 + 324 - 612 \cos A$$

$$529 = 613 - 612 \cos A$$

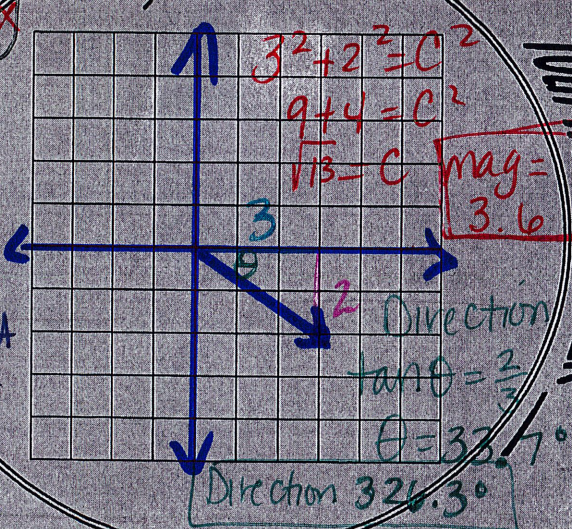
$$-84 = -612 \cos A$$

$$\frac{-84}{-612} = \frac{-612 \cos A}{-612}$$

$$.13725 = \cos A$$

$$\cos^{-1}(.13725) = A = 82.1^\circ$$

Find magnitude and direction



10th TASK: NUMBER

$$.13725 = \cos A$$

$$\cos^{-1}(.13725) = A = 82.1^\circ$$

$$\vec{a} = \langle -1.5, 4 \rangle \quad \vec{b} = \langle 7, 3 \rangle \quad \vec{c} = \langle 1, -2 \rangle$$

Write in component form

11th TASK: BONUS

find $-2\vec{a} + \vec{b}$

$$-2\langle -1.5, 4 \rangle + \langle 7, 3 \rangle$$

$$\langle 3, -8 \rangle + \langle 7, 3 \rangle$$

$$\langle 10, -5 \rangle$$

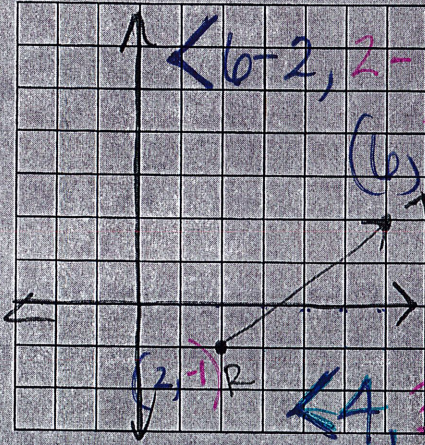
$$2\vec{c} - \vec{b}$$

$$2\langle 1, -2 \rangle - \langle 7, 3 \rangle$$

$$\langle 2, -4 \rangle - \langle 7, 3 \rangle$$

$$\langle -5, -7 \rangle$$

Write in component form



12th TASK: BONUS