6.3 day 1

Monday, April 6, 2015
10:09 AM

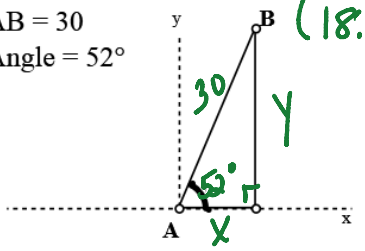
Algebra 2 Trig Honors
Sect 6.3 Notes Day 1

Name: _____

Right Triangle Trigonometry and Coordinates
Find the coordinates of B, the terminal point of the rotation. Round lengths to the nearest tenth and angles to the nearest degree.

1.

AB = 30
Angle = 52°



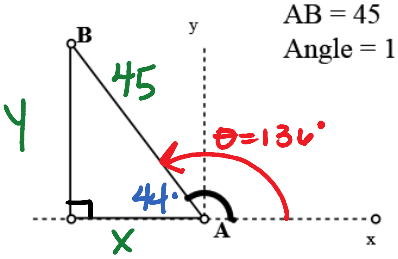
(18.5, 23.6)

$\cos 52° = \frac{x}{30}$ $\quad \sin 52° = \frac{y}{30}$

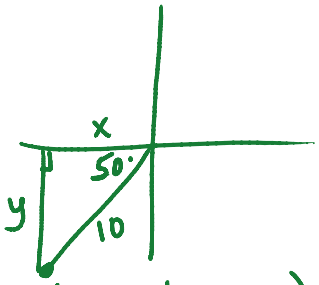
$x = 18.5$ $\quad y = 23.6$

2. (32.4, 31.3)

AB = 45
Angle = 136°

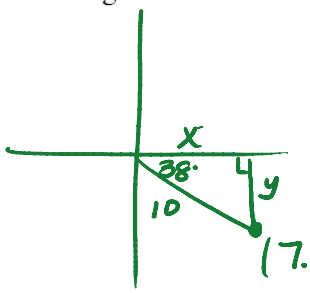


3. Length of Terminal side = 10
Angle = 230°



(−6.4, −7.7)

4. Length of Terminal side = 10
Angle = 322°



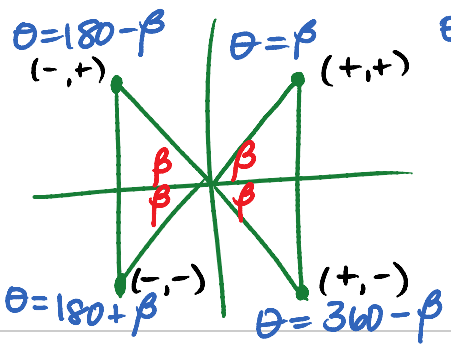
(7.9, −6.2)

Please get out your calculators and find the following values:

5. sin 30° = .5
sin 150° = .5
sin 210° = −.5
sin 330° = −.5

6. cos 62° = .47
cos 118° = −.47
cos 242° = −.47
cos 298° = .47

What do you notice?

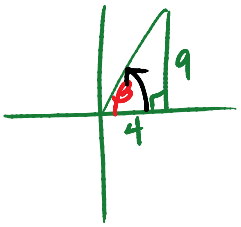


θ = rotation angle

In the next problems, round lengths to the nearest tenth and angles to the nearest degree. A terminal point is given.

(a) Plot the coordinate.
(b) Find the length of the hypotenuse, *r*.
(c) Use a trig equation to find the reference angle, β.
(d) Mark the **rotation** with an arc and find its measure, θ.

7. (4, 9)

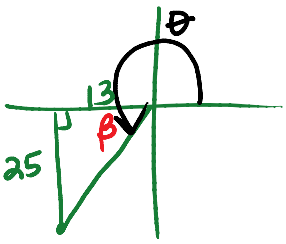


$r = \sqrt{97} = 9.8$

$\beta = \tan^{-1}\left(\frac{9}{4}\right) = 66°$

$\theta = 66°$

8. (-13, -25)

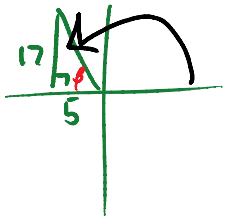


$r = \sqrt{13^2+25^2} = 28.2$

$\beta = \tan^{-1}\left(\frac{25}{13}\right) = 63°$

$\theta = 180°+63° = 243°$

9. (-5, 17)



$r = \sqrt{314} = 17.7$

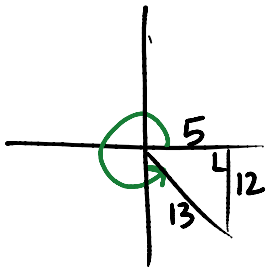
$\beta = \tan^{-1}\left(\frac{17}{5}\right) = 74°$

$\theta = 180° - 74° = 106°$

10. Write the six trig ratios for the terminal point (5, -12).

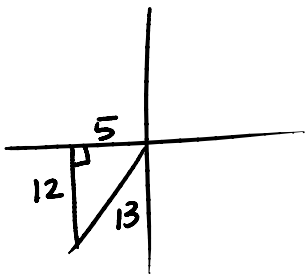
$\sin\theta = \frac{-12}{13}$ $\quad \cos\theta = \frac{5}{13}$ $\quad \cot\theta = \frac{-5}{12}$

$\tan\theta = \frac{-12}{5}$ $\quad \csc\theta = \frac{-13}{12}$ $\quad \sec\theta = \frac{13}{5}$



Suppose θ is an angle in standard position whose terminal side is in the given quadrant. For each function, find the exact values of the remaining five trig ratios.

11. $\cos\theta = -\frac{5}{13}$, Quadrant III



$\sec\theta = \frac{-13}{5}$

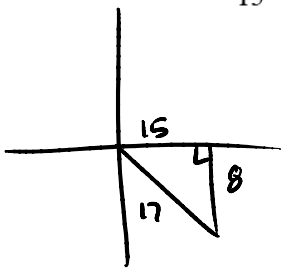
$\sin\theta = \frac{-12}{13}$

$\csc\theta = \frac{-13}{12}$

$\tan\theta = \frac{12}{5}$

$\cot\theta = \frac{5}{12}$

12. $\tan\theta = -\frac{8}{15}$, Quadrant IV



$\cot\theta = \frac{-15}{8}$

$\cos\theta = \frac{15}{17}$

$\sec\theta = \frac{17}{15}$

$\sin\theta = \frac{-8}{17}$

$\csc\theta = \frac{-17}{8}$