

Problem Set 8

Use the π button on your calculator instead of typing in 3.14. Present exact values (preferred) or round approximations to three decimal places.

1. Use your calculator to evaluate each of the following. Present your answer in radians.

(a) $\arctan(-1) =$

(b) $\arcsin 0.22 =$

(c) $\arccos(1.3) =$

2. Convert 3 radians to degrees.

3. Find the polar coordinates of $(10, -24)$.

4. Find the rectangular coordinates of $(27, 138^\circ)$

5. Find the exact value of $\tan \beta$ if we know that $\cos \alpha = \frac{1}{5}$ and $\alpha + \beta = 90^\circ$.

6. Find the exact value of each of the following expressions.

(a) $\cos 60^\circ + \sqrt{2} \sin 45^\circ =$

(b) $\cos 60^\circ \cos 30^\circ - \sin 60^\circ \sin 30^\circ =$

7. Find the acute angle α with the property that $\sin \alpha = \frac{1}{2}$. Present your answer

(a) in degrees

(b) in radians

8. An object is traveling around a circle of radius 18 m. It completes a cycle in every 5 seconds. Find the speed of the object in meters per second.

9. An object is traveling around a circle of radius 9 m. It completes a cycle in every 5 seconds. Find the speed of the object in meters per second.

10. Find the area of the shaded region on the picture below. The area of the circle is 4 m^2 .

