Warm-up

The average speed of a runner in the 4K race was 10 mph. Set up a normal distribution curve with a standard deviation of 2 miles per hour.

Determine how many runners ran:

Between 12 mph and 16 mph.

More than 14 mph.

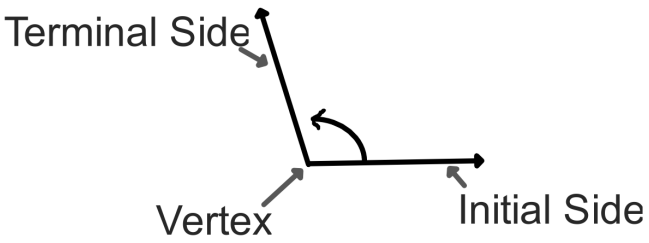
Less than 8 mph.

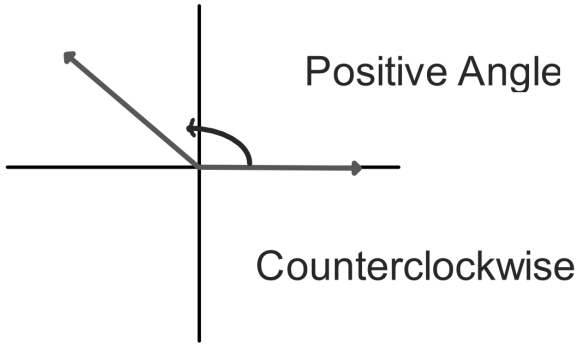
Between 4 mph and 14 mph.

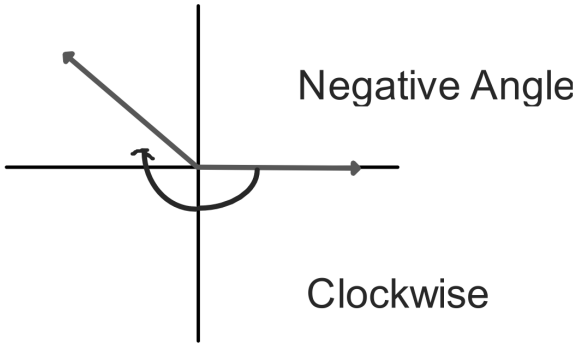
Welcome to Unit 3

Trigonometry

Parts of an angle:







Converting from DMS to Degrees

DMS: Degree-minute-second

' = minute " = second

$1^\circ = 60'$ minutes

1 minute = 60 seconds

Degree to DMS: 56.735°

1) Take the part after the decimal and multiply by 60.

$.735 \times 60 = 44.1$

2) Take the part after the decimal and multiply by 60 again.

$.1 \times 60 = 6$

$56^\circ 44' 6''$

DMS to Degree: $32^\circ 5' 28''$

$\frac{}{60}$ $\frac{}{3600}$

1) Divide the ' by 60 and the " by 3600 and add them all together.

$$32 + \frac{5}{60} + \frac{28}{3600} = 32.09^\circ$$

60 min = 1°

60 sec = 1'

Practice

1) DMS to Degree: 89°56'7"

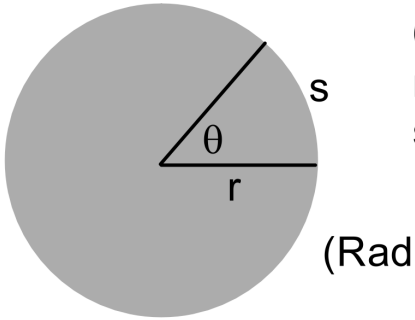
$89 + \frac{56}{60} + \frac{7}{3600} = 89.93°$

2) Degree to DMS: 213.875°

213°52'30" .875×60 = 52.5

.5×60 = 30

Radian to Degree



theta

$\theta = s/r$

r=radius

s=arc length

(Radian usually has π in it)

Radian to Degree: 5π/6 rad

Multiply by 180/π. $\frac{5\pi}{6} \cdot \frac{180}{\pi} = \frac{(5 \cdot 180)}{6} = 150$

Degree to Radian: 120°

Multiply by π/180. $\frac{120}{1} \cdot \frac{\pi}{180} = \frac{120\pi}{180} = \frac{2\pi}{3}$

Practice

1. Rad to Degree: -3π/2

$\frac{-3\pi}{2} \cdot \frac{180}{\pi} = \frac{(-3 \cdot 180)}{2} = -\frac{540}{2} = -270°$

2. Degree to Rad: -60°

$\frac{-60}{1} \cdot \frac{\pi}{180} = \frac{-60}{180} = \frac{-\pi}{3}$

Coterminal Angles

Degree: Add or Subtract 360n

Radian: Add or Subtract $2\pi n$

where n is an integer.

Identify all angles that are coterminal with the given angle.

1) $45° + 360 = 405°$

$405 - 360 = 45°$

2) $-\pi/3 + 2\pi$

$-\frac{\pi}{3} + \frac{6\pi}{3} = \frac{5\pi}{3}$

$2 = \frac{6}{3}$

Practice:

1) $-30° + 360 = 330°$

< 360 add

> 360 subtract

2) $3\pi/4 + 2\pi$

$< 2\pi$ add

$> 2\pi$ sub.

$\frac{3\pi}{4} + \frac{8\pi}{4} = \frac{11\pi}{4}$

Class work:

p.238 #2-24 even