

### Warm-up

How fast (in miles per hour) are we spinning (due to the rotation of the earth)?

Spokane lies at a latitude of 47 degrees, 40 minutes North.

700mph

Nov 30-7:17 AM

### Measuring Angles

Dec 3-7:29 AM

Convert to decimal degrees      Convert to degrees, minutes, seconds

$$31^{\circ}57'5''$$

$$31 + \frac{57}{60} + \frac{5}{3600}$$

$$31.951$$

$$47.34^{\circ} \quad .34(60) = 20.4$$

$$.4(60) = 24$$

$$47^{\circ}20'24''$$

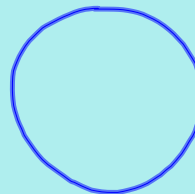
Dec 3-7:44 AM

### Radian Angle Measure

$$360^{\circ} = 2\pi$$

$$180^{\circ} = \pi$$

$$90^{\circ} = \frac{\pi}{2}$$



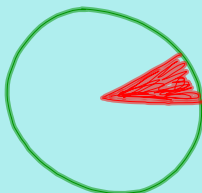
360° full circle

$$C = 2\pi r$$

2π radians full circle

Jan 2-10:56 AM

Convert to degrees



Convert to radians

$$\frac{35^{\circ}}{360} = \frac{?}{2\pi}$$

$$\frac{70\pi}{360}$$

Dec 3-7:44 AM

Angular Velocity

$$\frac{360^{\circ}}{1 \text{ min}}$$

Linear Velocity

$$r = 4 \text{ in} \quad C = 8\pi$$

How fast would you be going if you were sitting on the tip of the second hand on the clock? (mph)

$$\frac{8\pi \cancel{\text{in}}}{1 \cancel{\text{min}}} \cdot \frac{60 \cancel{\text{min}}}{1 \text{ hr}} \cdot \frac{1 \cancel{\text{ft}}}{12 \cancel{\text{in}}} \cdot \frac{1 \text{ mi}}{5280 \cancel{\text{ft}}} = .024 \text{ mph}$$

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Angular Velocity

Linear Velocity

How long would the second hand need to be in order for you to break the sound barrier (760 mph)?

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