

Review - Measurement, Geometry, Circles

Measurement

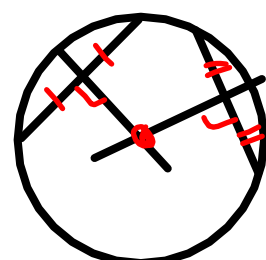
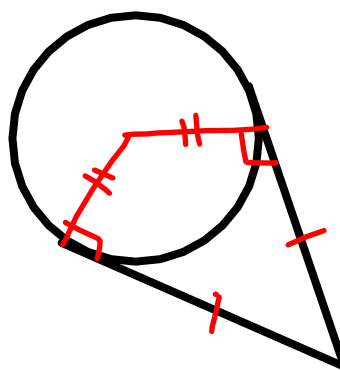
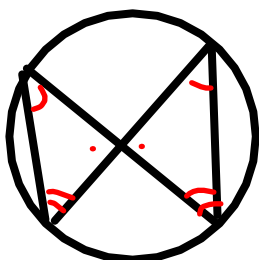
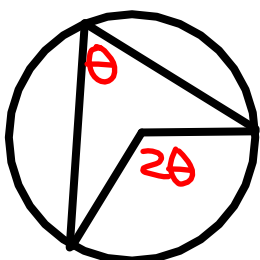
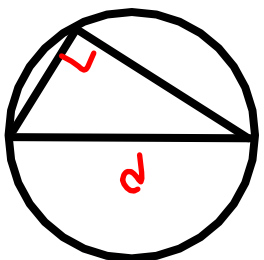
- Unit Conversions
- Using Formulas
- Solving for Dimensions
- Optimization

$$1 \text{ m} = 100 \text{ cm}$$

$$1 \text{ m}^2 = (100 \text{ cm})^2 = 10000 \text{ cm}^2$$

Circles

- Terminology: Arc, Chord, Secant, Tangent, Sector, Segment, Central Angle, Inscribed Angle
- Properties



Example 1: A cylindrical silo has a diameter of 14ft. If the silo contains 230 cubic yards of grain, determine the height of the silo. (Note: the dome is not filled.)



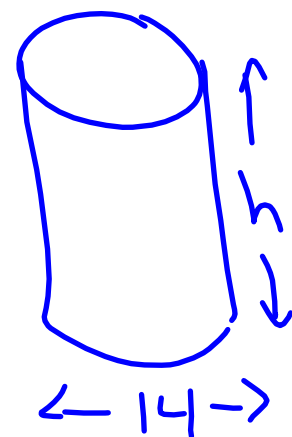
$$V = A_{\text{base}} \times h$$

$$V = \pi r^2 h$$

$$6210 = \pi (7)^2 h$$

$$\frac{6210}{153.9} = \frac{153.9}{153.9} h$$

$$40.35 = h$$



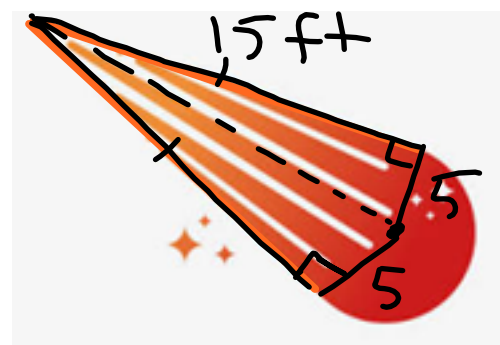
$$(3 \text{ ft})^3 = (1 \text{ yd})^3$$

$$27 \text{ ft}^3 = 1 \text{ yd}^3$$

$$230 \text{ yd}^3 \times 27 = 6210 \text{ ft}^3$$

The height is 40.35 ft.

Example 2: A sports team has a comet-shaped logo. The radius of the circle is 5cm. The borders of the comet's tail is tangent to the circle, and each side is 15cm long. Determine the area of the comet.



$$\tan \theta = \frac{\text{opp}}{\text{adj}}$$

$$\tan \theta = \frac{15}{5}$$

$$\theta = \tan^{-1}(3)$$

$$\boxed{\theta = 71.6^\circ}$$

Sector angle

$$360 - 2(71.6) = 216.8$$

$$A = \pi r^2$$

$$= \pi (5)^2$$

$$= 78.5$$

$$\text{Sector: } \frac{216.8}{360} (78.5)$$

$$\boxed{= 47.3}$$

$$A_{\text{triangle}}: A = \frac{bh}{2}$$

$$= \frac{5(15)}{2}$$

$$\boxed{= 37.5}$$

$$\text{Total Area: } A = 2(37.5) + 47.3$$

$$\boxed{= 122.3}$$



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Exam Word Bank

<p>A. Growth / Decay Factor B. Asymptote C. Logarithm D. Degree E. End Behaviour F. Finite Differences G. X-intercept H. Y-intercept I. Double Root</p>	<p>J. Triple Root K. Regression L. Standard Position M. Ambiguous Case N. Vector O. Equivalent Vectors P. Opposite Vectors Q. Normal Bearing R. Azimuth Bearing</p>	<p>S. Quadrant Bearing T. Amplitude U. Period V. Phase Shift W. Arc X. Sector Y. Chord Z. Segment</p>
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