

Digits Lesson 13-3

Surface Area of Pyramids and Cones

4/23/2019

Goal: I will be able to find the surface area of pyramids and cones.

Tool Bag
Formulas, equations,
Vocabulary, etc.

Here's How... Notes & Examples

Regular Pyramid

Slant Height = 12"

To find surface area - "lay" it flat

Surface Area = Base Area + Triangle Areas
 = $8 \cdot 8 + 4(\frac{1}{2} \cdot 8 \cdot 12)$
 = $64 + 4(4 \cdot 12)$
 = $64 + 4(48)$
 = $64 + 192$
 = 256 in^2

Cone

Center of Circle
12" ← slant height

Surface Area = Base Area + Lateral Areas
 = $\pi \cdot r^2 + \pi \cdot r \cdot \text{slant height}$
 = $\pi \cdot 3^2 + \pi \cdot 3 \cdot 12$
 = $9\pi + 36\pi$
 = 45π
 $\approx 141 \text{ in}^2$

You Try

a) $S = 5 \cdot 5 + 4(\frac{1}{2} \cdot 5 \cdot 8)$
 $= 25 + 4(20)$
 $= 25 + 80$
 $= 105 \text{ ft}^2$

b) $S = \pi \cdot 9^2 + \pi \cdot 9 \cdot 6$
 $= 81\pi + 54\pi$
 $= 135\pi$

c) $S = 9 \cdot 9 + 4(\frac{1}{2} \cdot 9 \cdot 12)$
 $= 81 + 4(54)$
 $= 81 + 216$
 $= 297$

d) $S = \pi \cdot 5^2 + \pi \cdot 5 \cdot 12$
 $= 25\pi + 60\pi$
 $= 85\pi$

c) $S = 9 \cdot 9 + 4(\frac{1}{2} \cdot 9 \cdot 12)$
 $= 81 + 4(54)$
 $= 81 + 216$
 $= 297$

d) $S = \pi \cdot 5^2 + \pi \cdot 5 \cdot 12$
 $= 25\pi + 60\pi$
 $= 85\pi$

$2^2 + 12^2 = c^2$
 $4 + 144 = c^2$
 $148 = c^2$
 $12.17 = c$

$3^2 + 5^2 = c^2$
 $9 + 25 = c^2$
 $34 = c^2$
 $5.83 = c$

$12^2 + 5^2 = c^2$
 $144 + 25 = c^2$
 $169 = c^2$
 $13 = c$

$S = \text{bottom} + \text{side}$
 $= \text{circle} + \text{trapezoid}$
 $= \pi r^2 + \pi r s$
 $= \pi 5^2 + \pi 5 \cdot 13$
 $= 25\pi + 65\pi$
 $= 90\pi$