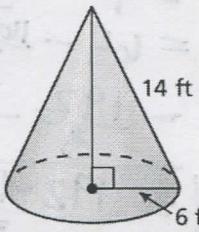
Name Key Date

11.7 Practice WS

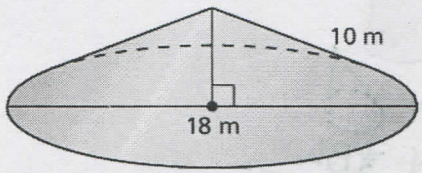
In Exercises 1 and 2, find the surface area of the right cone.

1.



$T = \pi r^2 + \pi r\ell$
$= \pi(6)^2 + \pi(6)(14)$
$= 36\pi + 84\pi$
$= 120\pi \approx 376.991 \text{ ft}^2$

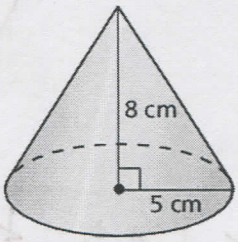
2.



$T = \pi r^2 + \pi r\ell$
$= \pi(9)^2 + \pi(9)(10)$
$= 81\pi + 90\pi$
$= 171\pi \approx 537.212 \text{ m}^2$

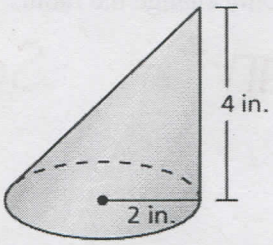
In Exercises 3 and 4, find the volume of the cone.

3.



$V = \frac{1}{3}\pi r^2 h$
$= \frac{1}{3}\pi(5)^2(8)$
$= \frac{200\pi}{3} \approx 209.44 \text{ cm}^3$

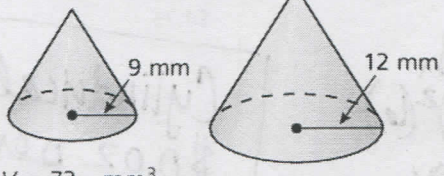
4.



$V = \frac{1}{3}\pi r^2 h$
$= \frac{1}{3}\pi(2)^2(4)$
$= \frac{16\pi}{3} \text{ in}^3$
$\approx 16.755 \text{ in}^3$

In Exercises 5 and 6, the cones are similar. Find the volume of Cone B.

5.

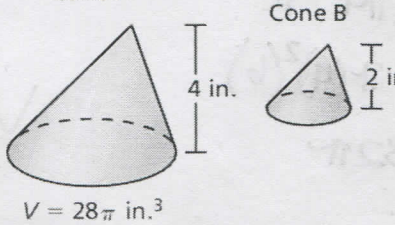


$V = 72\pi \text{ mm}^3$

$K = \frac{9}{12} = \frac{3}{4}$ $K^3 = \frac{27}{64}$

$\frac{72\pi}{x} = \frac{27}{64}$
$27x = 1728\pi$
$x = 64\pi \approx 201.062 \text{ mm}^3$

6.



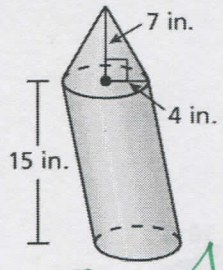
$V = 28\pi \text{ in.}^3$

$K = \frac{4}{2} = 2$
$K^3 = 2^3 = 8$

$\frac{28\pi}{x} = \frac{8}{1}$
$8x = 28\pi$
$x = \frac{14\pi}{4} \approx 10.996 \text{ in}^3$

In Exercises 7 and 8, find the volume of the composite solid.

7.



$V = \square + \triangle$

$= Bh + \frac{1}{3}Bh$

$= \pi r^2 h + \frac{1}{3}\pi r^2 h$

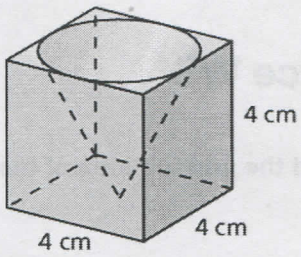
$= \pi(4)^2(15) + \frac{1}{3}\pi(4)^2(7)$

$= 240\pi + \frac{112\pi}{3}$

$= \frac{720\pi + 112\pi}{3}$

$= \frac{832\pi}{3} \approx 871.268 \text{ in}^3$

8.



$V = \square - \triangle$

$= Bh - \frac{1}{3}Bh$

$= s^2 h - \frac{1}{3}\pi r^2 h$

$= 4^3 - \frac{1}{3}\pi(2)^2(4)$

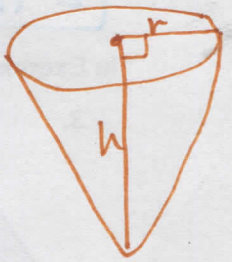
$= 64 - \frac{16\pi}{3}$

$= \frac{192}{3} - \frac{16\pi}{3}$

$= \frac{192 - 16\pi}{3} \text{ cm}^3$

$\approx 47.245 \text{ cm}^3$

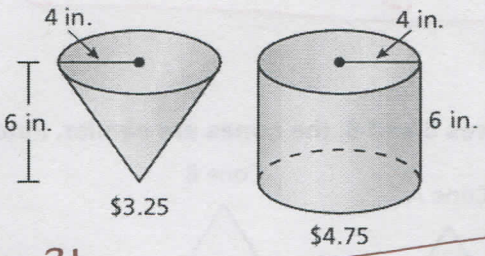
9. A cone has height h and a base with radius r. You want to change the cone so its volume is tripled. What is the new height if you only change the height? What is the new radius if you only change the radius? Explain.



$V = \frac{1}{3}\pi r^2 h$ So $3(V) = \pi r^2 h$

So $3r$ & $3h$, $\frac{1}{3}$, $r\sqrt{3}$

10. A snack stand serves shaved ice in cone-shaped containers and cylindrical containers. Which container gives you more shaved ice for your money? Explain.



$V = \frac{1}{3}\pi r^2 h$

$= \frac{1}{3}\pi(4)^2(6)$

$= 32\pi$

30.93

$V = \pi r^2 h$

$= \pi(4)^2(6)$

$= 96\pi$

63.49

Cylindrical container $0.02 per cubic in. The cone container $0.03 per cubic in.