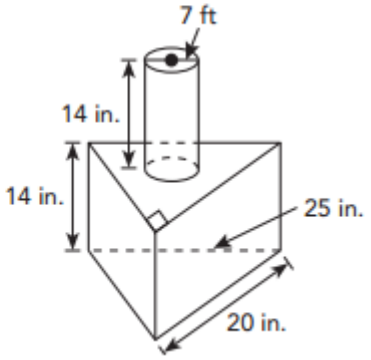
Week 3 Tuesday Course 3 Warm-up

Round your answer to the nearest tenth if necessary.

1. Find the volume of each of the following composite solids.

a) A cylinder that sits on top of a triangular prism



Week 3 Tuesday Course 3 Warm-up

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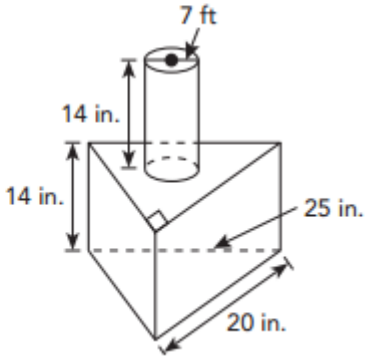
1. Find the volume of each of the following composite solids.

a) A cylinder that sits on top of a triangular prism



a) Let the unknown side of the base of the triangular prism be x inches.

$$x^2 + 20^2 = 25^2$$
$$x^2 + 400 = 625$$
$$x^2 + 400 - 400 = 625 - 400$$
$$x^2 = 225$$
$$x = \sqrt{225}$$
$$x = 15$$

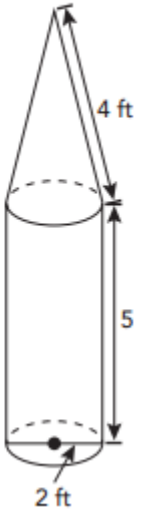
Volume of prism
$= \frac{1}{2} \cdot 15 \cdot 20 \cdot 14$
$= 2{,}100 \text{ in}^3$
Volume of cylinder
$\approx 3.14 \cdot 3.5^2 \cdot 14$
$\approx 538.5 \text{ in}^3$
Volume of composite solid
$\approx 538.5 + 2{,}100$
$= 2{,}638.5 \text{ in}^3$
The volume of the composite solid is approximately 2,638.5 cubic inches.

Week 3 Wednesday Course 3 Warm-up

Round your answer to the nearest tenth if necessary.

1. Find the volume of each of the following composite solids.

A cone that sits on top of a cylinder

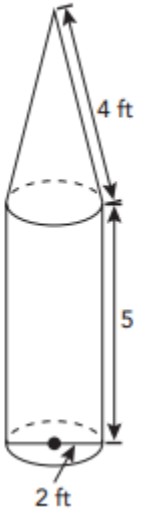


Week 3 Wednesday Course 3 Warm-up

Round your answer to the nearest tenth if necessary.

1. Find the volume of each of the following composite solids.

A cone that sits on top of a cylinder



b) Let the height of the cone be x feet.

Radius of cone = 1 ft

$x^2 + 1^2 = 4^2$

$x^2 + 1 = 16$

$x^2 + 1 - 1 = 16 - 1$

$x^2 = 15$

$x = \sqrt{15}$

$x \approx 3.87$

Volume of cone

$\approx \frac{1}{3} \cdot 3.14 \cdot 1^2 \cdot 3.87$

$\approx 4.1 \text{ ft}^3$

Volume of cylinder

$\approx 3.14 \cdot 1^2 \cdot 5$

$= 15.7 \text{ ft}^3$

Volume of composite solid

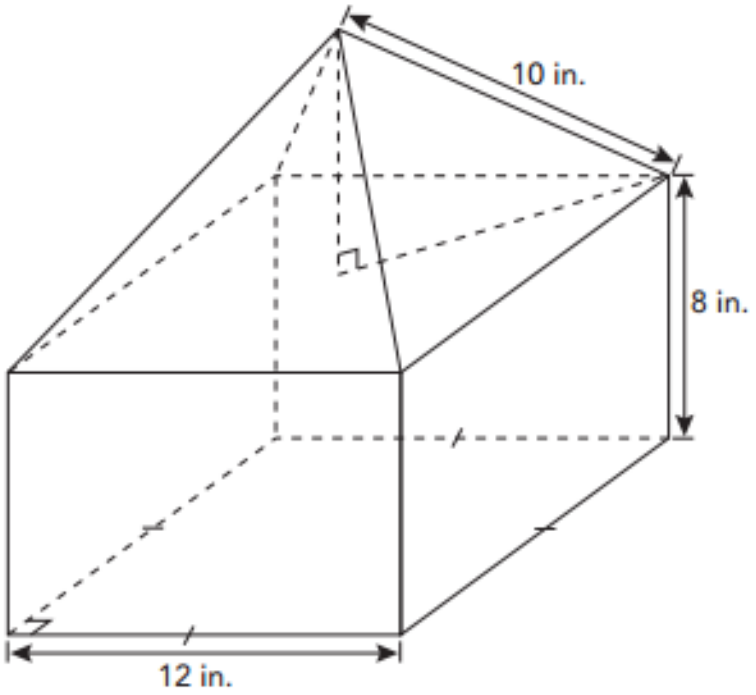
$\approx 15.7 + 4.1$

$= 19.8 \text{ ft}^3$

The volume of the composite solid is approximately 19.8 cubic feet.

Week 3 Thursday Course 3 Warm-up

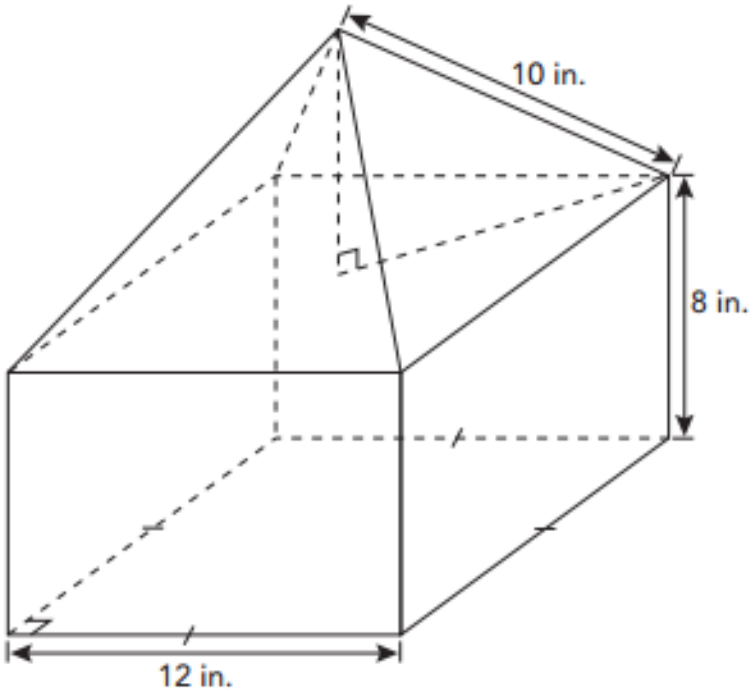
Joanne made a jewelry box in the shape of a rectangular prism with the shape of a square pyramid.



a) Find the length of a diagonal of the base of the jewelry box.

Week 3 Thursday Course 3 Warm-up

Joanne made a jewelry box in the shape of a rectangular prism with the shape of a square pyramid.



a) Find the length of a diagonal of the base of the jewelry box.

a) Let the length of the diagonal be x inches.

$x^2 = 12^2 + 12^2$

$x^2 = 288$

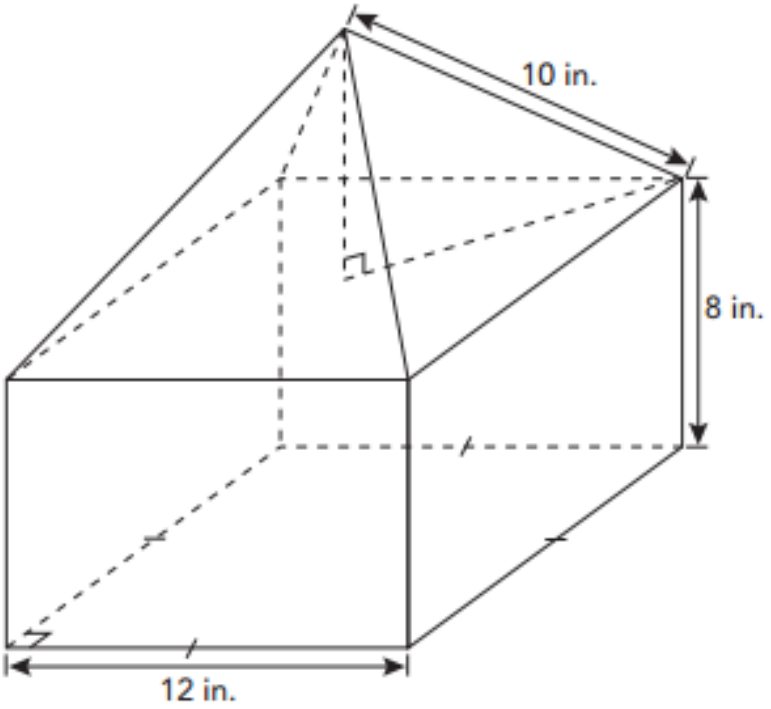
$x = \sqrt{288}$

$x \approx 17.0$

The length of the diagonal of the base is approximately 17.0 inches.

Week 3 Friday Course 3 Warm-up

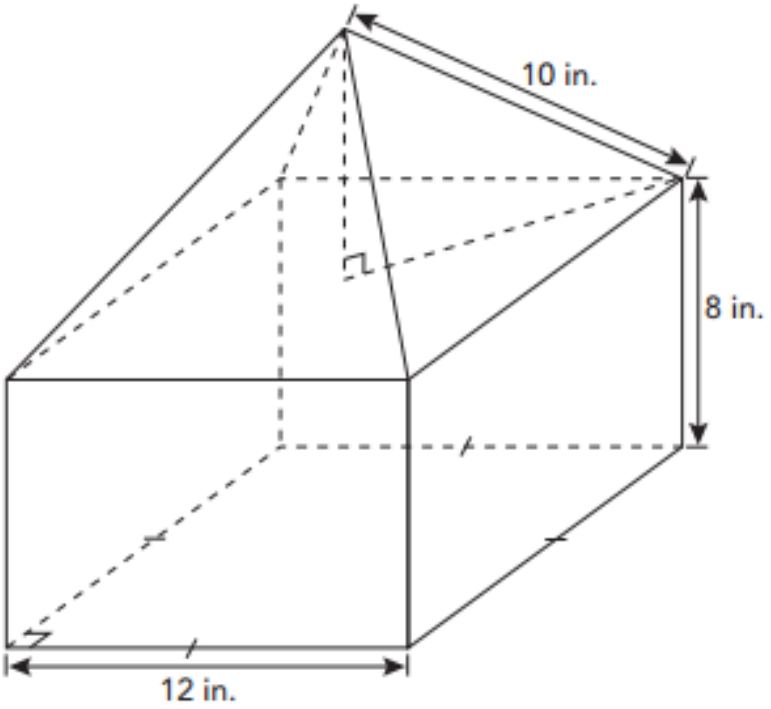
Joanne made a jewelry box in the shape of a rectangular prism with the shape of a square pyramid.



Find the height of the cover.

Week 3 Friday Course 3 Warm-up

Joanne made a jewelry box in the shape of a rectangular prism with the shape of a square pyramid.



Find the height of the cover.

b) Length of half the diagonal $= \frac{1}{2} \cdot \sqrt{288}$

≈ 8.485 in.

Let the height of the pyramid be y inches.

$$y^2 + 8.485^2 \approx 10^2$$

$$y^2 + 8.485^2 - 8.485^2 = 10^2 - 8.485^2$$

$$y^2 = 28.00$$

$$y = \sqrt{28}$$

$$y \approx 5.3$$

The height of the pyramid is approximately 5.3 inches.