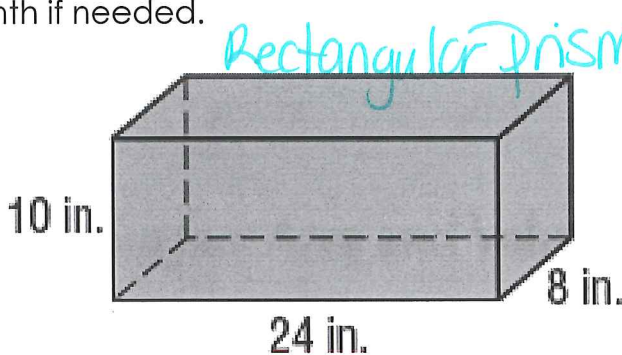


Basic Surface Area and Volume of Prisms Homework 2017

Directions: Find the volume and surface area of the solid, round to the nearest tenth if needed.

1.



SA = 1024 in²

V = 1920 in³

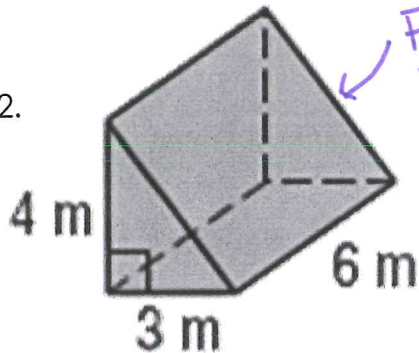
$$SA = 2(10 \times 24) + 2(8 \times 10) + 2(24 \times 8)$$

$$V = 24 \times 8 \times 10$$

$$V = 1920$$

SA = 1024

2.



Find this $3^2 + 4^2 = x^2$

$$4^2 + 3^2 = x^2$$

$$16 + 9 = x^2$$

$$25 = x^2$$

$$5 = x$$

SA = 84 m²

V = 36 m³

Surface Area

$$2\left(\frac{1}{2} \cdot 3 \cdot 4\right) + 3 \cdot 6 + 4 \cdot 6 + 5 \cdot 6$$

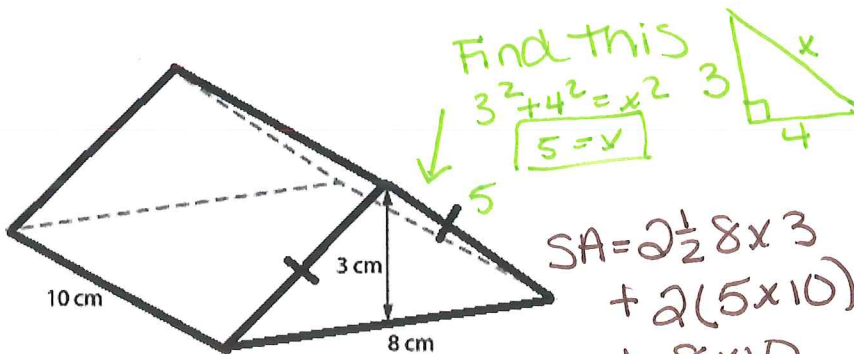
SA = 84 m²

$V = B \cdot H$ $B = \frac{1}{2} b \cdot h$

$$V = \frac{1}{2} \cdot 3 \cdot 4 \cdot 6$$

V = 36

3.



Find this $3^2 + 4^2 = x^2$

$$3^2 + 4^2 = x^2$$

$$9 + 16 = x^2$$

$$25 = x^2$$

$$5 = x$$

SA = 204 cm²

V = 120 cm³

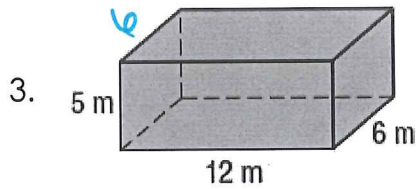
$$SA = 2\left(\frac{1}{2} \cdot 8 \cdot 3\right) + 2(5 \cdot 10) + 8 \cdot 10$$

SA = 204

$V = B \cdot H$

$$V = \frac{1}{2} \cdot 8 \cdot 3 \cdot 10$$

V = 120



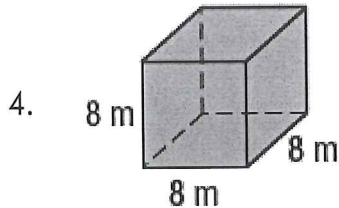
$$2(5 \times 6)$$

$$2(12 \times 6)$$

$$2(12 \times 5)$$

$$SA = 324 m^2$$

$$SA = \underline{324 m^2}$$

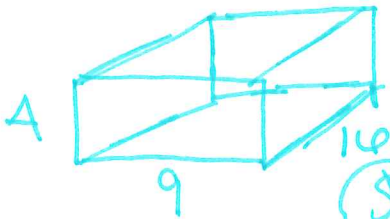


$$V = B \cdot H$$

$$V = 8 \cdot 8 \cdot 8$$

$$V = \underline{512 m^3}$$

5. How many square feet of cardboard does Jessica need to make a rectangular prism with length of 16 inches, width of 9 inches, and height of 4 inches? Draw this 1st.



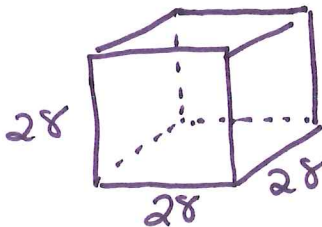
$$2(4 \times 9)$$

$$2(16 \times 4)$$

$$2(9 \times 16)$$

$$SA = 488 in^2$$

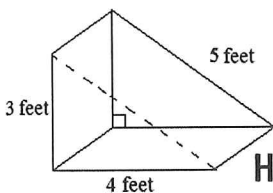
6. A package shaped like a cube has an edge that is 28 cm long. How much space is available to pack inside the box? Draw this 1st.



$$V = 28 \times 28 \times 28$$

$$V = 21,952 cm^3$$

7. Given the volume of the triangular prism is 42 ft³, find the height of the prism.



$$V = B \cdot H$$

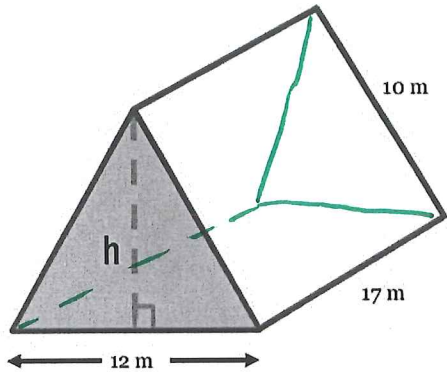
$$42 = \frac{1}{2} 4 \times 3 \cdot H$$

$$42 = 6H$$

$$7 = H$$

$$H = 7 ft$$

8. Given the surface area of the triangular prism is 640 m^2 , find the missing part.



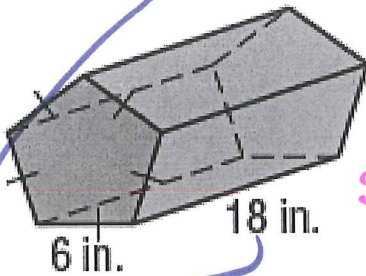
$$2\left(\frac{1}{2} 12 \times h\right) + 2(10 \times 17) + 17 \times 12 = 640$$

$$12h + 544 = 640$$

$$12h = 96$$

$$h = 8 \text{ m}$$

9. Draw the net, then find the volume and surface area of the solid, round to the nearest tenth if needed.



$$\cos(54) = \frac{6}{r} \quad r = 10.2$$

$$SA = 1034.7 \text{ in}^2$$

$$V = 4452.7 \text{ in}^3$$

$$SA = 2\left(5 \frac{1}{2} \times 10.2 \times 10.2 \sin(72)\right) + 5(18 \times 6)$$

$$SA = 1034.7$$

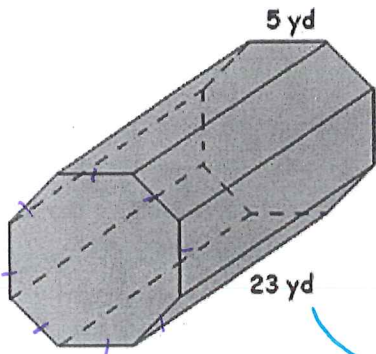
$$B = 5 \frac{1}{2} \times 10.2 \times 10.2 \sin(72)$$

$$V = B \cdot H$$

$$V = 5 \frac{1}{2} \times 10.2^2 \sin(72) \cdot 18$$

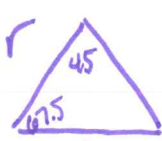
$$V = 4452.7 \text{ in}^3$$

10. Draw the net, then find the volume and surface area of the solid, round to the nearest tenth if needed. $n = 8$



$$B = n \frac{1}{2} a b \sin \theta$$

Find radius



$$\cos(47.5) = \frac{2.5}{r}$$

$$r = 6.5$$

$$SA = 1159.0 \text{ yd}^2$$

$$V = 2748.5 \text{ yd}^3$$

$$V = B \cdot H$$

$$B = 8 \frac{1}{2} (6.5 \times 6.5 \sin(45)) \quad V = (8 \frac{1}{2} (6.5 \times 6.5 \sin(45))) \cdot 23$$

$$SA = 2\left(8 \frac{1}{2} (6.5 \times 6.5 \sin(45))\right) + 8(23 \times 5)$$

$$SA = 1159.0$$

$$V = 2748.5$$