

5-8-19

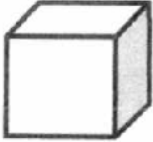
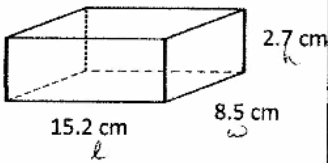
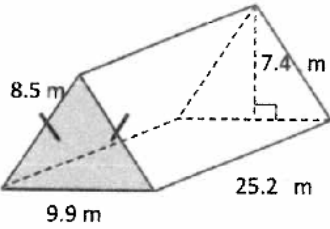
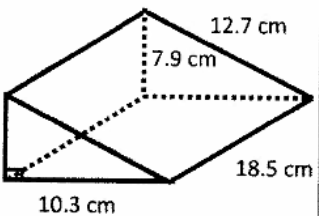
Aim: SWBAT find the actual and estimated volume of prisms and pyramids.

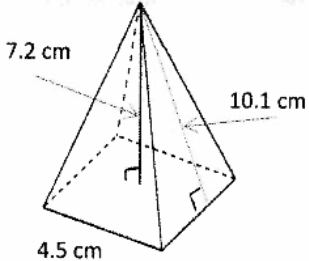
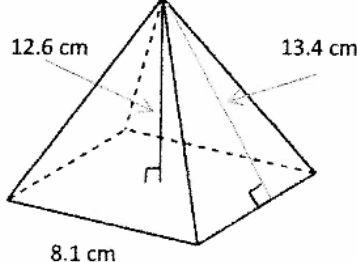
HW: Finish Packet Pages 14 - 15

Test Friday

Do Now: Packet Page 13

Find the exact and estimated surface area of each figure, algebraically.

	Actual Surface Area	Estimated Surface Area
 <p>11.4 cm</p>	$SA = 6s^2$ $SA = 6 \cdot (11.4)^2$ $SA = 6 \cdot 129.96$ $SA = 779.76 \text{ cm}^2$	$SA = 6s^2$ $SA \approx 6 \cdot 11^2$ $SA \approx 6 \cdot 121$ $SA \approx 726 \text{ cm}^2$
 <p>15.2 cm 8.5 cm 2.7 cm</p>	$SA = 2lw + 2lh + 2wh$ $SA = 2(8.5)(15.2) + 2(15.2)(2.7) + 2(8.5)(2.7)$ $SA = 258.4 + 82.08 + 45.9$ $SA = 386.38 \text{ cm}^2$	$SA = 2lw + 2lh + 2wh$ $SA \approx 2 \cdot 9 \cdot 15 + 2 \cdot 15 \cdot 3 + 2 \cdot 9 \cdot 3$ $SA \approx 270 + 90 + 54$ $SA \approx 414 \text{ cm}^2$
 <p>8.5 m 9.9 m 7.4 m 25.2 m</p>	$SA = 2B + Ph$ $SA = 2\left(\frac{9.9(7.4)}{2}\right) + (8.5 + 8.5 + 9.9)(25.2)$ $SA = 73.26 + 677.88$ $SA = 751.14 \text{ m}^2$	$SA = 2B + Ph$ $SA \approx 2\left(\frac{10 \cdot 7}{2}\right) + (9 + 9 + 10)(25)$ $SA \approx 70 + 700$ $SA \approx 770 \text{ m}^2$
 <p>12.7 cm 7.9 cm 10.3 cm 18.5 cm</p>	$SA = 2B + Ph$ $SA = 2\left(\frac{10.3(7.9)}{2}\right) + (10.3 + 7.9 + 12.7)(18.5)$ $SA = 81.37 + 571.65$ $SA = 653.02 \text{ cm}^2$	$SA = 2B + Ph$ $SA \approx 2\left(\frac{10 \cdot 8}{2}\right) + (10 + 8 + 13)(19)$ $SA \approx 80 + 589$ $SA \approx 669 \text{ cm}^2$

	Actual Surface Area	Estimated Surface Area
	$SA = B + \frac{1}{2}Pl$ $SA = (4.5 \cdot 4.5) + \frac{1}{2}(4.5 + 4.5 + 4.5 + 4.5)(10.1)$ $SA = 20.25 + 90.9$ $SA = 111.15 \text{ cm}^2$	$SA = B + \frac{1}{2}Pl$ $SA \approx (5 \cdot 5) + \frac{1}{2}(5 + 5 + 5 + 5)(10)$ $SA \approx 25 + 100$ $SA \approx 125 \text{ cm}^2$
	$SA = B + \frac{1}{2}Pl$ $SA = (8.1 \cdot 8.1) + \frac{1}{2}(8.1 + 8.1 + 8.1 + 8.1)(13.4)$ $SA = 65.61 + 217.08$ $SA = 282.69 \text{ cm}^2$	$SA = B + \frac{1}{2}Pl$ $SA \approx (8 \cdot 8) + \frac{1}{2}(8 + 8 + 8 + 8)(13)$ $SA \approx 64 + 208$ $SA \approx 272 \text{ cm}^2$

Aim: SWBAT calculate the actual and estimated volume of prisms and pyramids.

Do Now: What are some differences between surface area and volume?

Volume is the amount of space a 3-dimensional figure occupies (the amount of water it can hold).

The formula $V = Bh$ can be used to calculate volume for all prisms.

B stands for the area of the base

h stands for height of the prism

Specific formulas are also associated with certain prisms.

Volume of a Cube:

$$V = s^3$$

Volume of a Rectangular Prism:

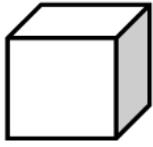
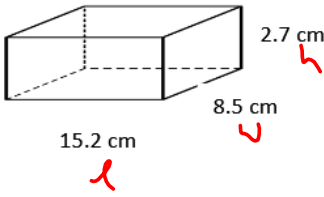
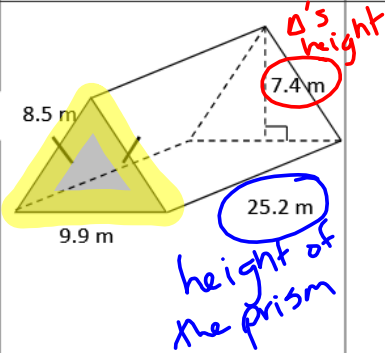
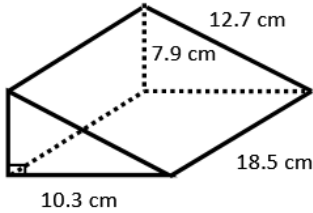
$$V = lwh$$

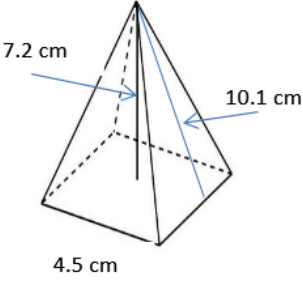
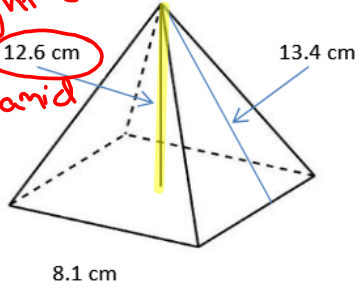
The formula $V = \frac{1}{3}Bh$ can be used to calculate volume for all pyramids.

B stands for the area of the base

h stands for height of the pyramid

Find the exact and estimated volume of each figure, algebraically.

	Actual Volume	Estimated Volume
 <p>11.4 cm</p>	$V = s^3$ $V = (11.4)^3$ $V = 1481.544 \text{ cm}^3$	$V = s^3$ $V \approx 11^3$ $V \approx 1331 \text{ cm}^3$
 <p>15.2 cm 8.5 cm 2.7 cm</p>	$V = lwh$	$V = lwh$
 <p>8.5 m 9.9 m 25.2 m 7.4 m</p> <p><i>height of the prism</i></p>	$V = Bh$ $V = \left(\frac{9.9(8.5)}{2}\right)(25.2)$ $V = (36.63)(25.2)$ $V = 923.076 \text{ m}^3$	$V = Bh$ $V \approx \left(\frac{10 \cdot 7}{2}\right)(25)$
 <p>12.7 cm 7.9 cm 10.3 cm 18.5 cm</p>		

	Actual Volume	Estimated Volume
 <p>7.2 cm 10.1 cm 4.5 cm</p>		
<p><i>height of the pyramid</i></p>  <p>12.6 cm 13.4 cm 8.1 cm</p>	<p>$V = \frac{1}{3} Bh$ $V = \frac{1}{3} (8.1)(8.1)(12.6)$ $V = \frac{1}{3} (65.61)(12.6)$ $V = 275.562 \text{ cm}^3$</p>	