

HW 9.1 SOL

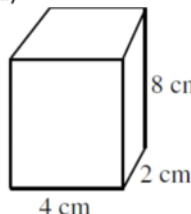
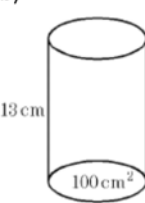
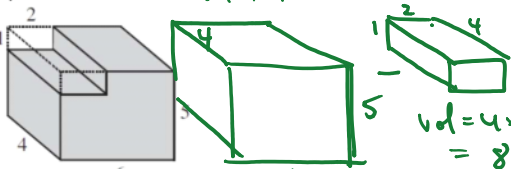
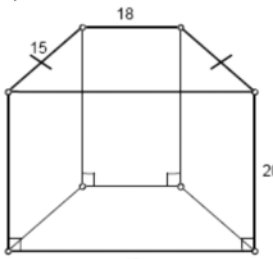
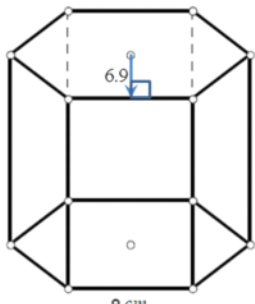
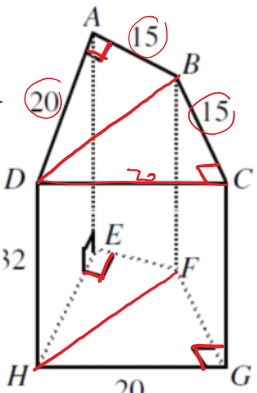
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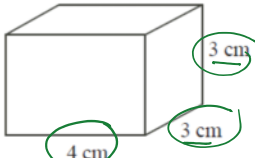
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HW Math 8 Section 9.1 Volume of Prisms

1. Find the volume of the following prisms:

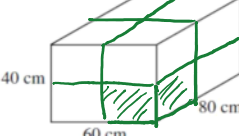
<p>a)</p>  <p>Area of the BASE = $4 \times 2 = 8$ $\text{Vol} = \text{A. of B} \times \text{Height}$ $= (8) \times (8)$ $= 64 \text{ cm}^3$</p>	<p>b)</p>  <p>$\text{Vol} = \underline{100 \text{ cm}^2} \times \underline{13}$ $= 1300 \text{ cm}^3$</p>
<p>c)</p>  <p>Vol Big: $4 \times 6 \times 5 = 120 \text{ units}^3$ Vol Reism: $2 \times 1 \times 1 = 2$ $120 - 2 = 118$</p>	<p>d)</p>  <p>Area of Base = $54 + 54 + 162 = 270 \text{ units}^2$ $\text{Vol} = (\text{A. of B.}) \times \text{Height}$ $= 270 \times 20$ $= 5400 \text{ units}^3$</p>
<p>e)</p>  <p>$A = \frac{8 \times 6.9}{2} = 27.6$ $A \text{ of B} = \frac{8 \times 6.9 \times 6}{2} = 165.6 \text{ cm}^2$ $\text{Vol} = 165.6 \text{ cm}^2 \times 12 = 1987.2 \text{ cm}^3$</p>	<p>f)</p>  <p>$A \text{ of B} = \frac{20 \times 15}{2} = 150$ $\text{Vol.} = (\text{A. of B.}) \times \text{Height} \times 2$ $= 150 \times 32 \times 2$ $= 9600 \text{ units}^3$</p>

2. How many 1cm by 1cm by 1cm cubes are needed to fill up the following rectangular prism?



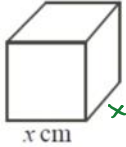
$\text{Vol} = l \times w \times h$
 $= 4 \times 3 \times 3$
 $= 36 \text{ boxes}$

3. What is the maximum number of rectangular wooden blocks with dimensions 20 cm x 30 cm x 40 cm that could fit into a rectangular box with inner dimensions 40 cm x 60 cm x 80 cm?



8 pieces

4. In the diagram, the cube has a volume of 343 cm³. What is the value of x?



$$(x)(x)(x) = 343 \text{ cm}^3$$

$$\boxed{x = 7 \text{ cm}}$$

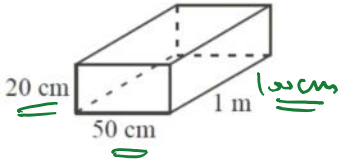
$$3 \times 3 \times 3 = 27$$

$$4 \times 4 \times 4 = 64$$

$$10 \times 10 \times 10 = 1000$$

$$\boxed{7 \times 7 \times 7 = 343}$$

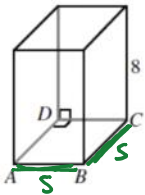
5. In the diagram, the rectangular solid has side lengths 1m, 20 cm and 50 cm. What is the volume of the solid, in cm³?



$$\text{Vol} = 20 \text{ cm} \times 50 \text{ cm} \times 100 \text{ cm}$$

$$= 100,000 \text{ cm}^3$$

6. A rectangular building block has a square base ABCD as shown. Its height is 8 units. If the block has a volume of 288 cubic units, what is the side length of the base?



$$8 \times s \times s = 288$$

$$s \times s = 36$$

$$6 \times 6 = 36$$

$$\boxed{s = 6}$$

7. Challenge: A rectangular chocolate cake has dimensions 20cm by 32cm by 3cm. It is to be shared equally among 30 students in a class. What quantity of chocolate will each person receive? If a chef were to cut the cake into cubes of equal sizes for everyone, then what would the dimensions be?

$$\text{Vol of CAKE} = 20 \times 32 \times 3$$

$$= 1920 \text{ cm}^3$$

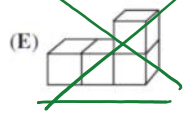
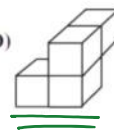
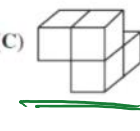
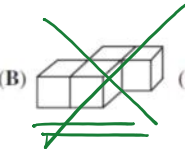
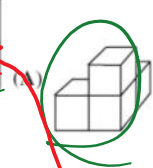
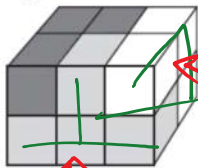
$$\text{EACH PERSON} = 1920 \text{ cm}^3 / 30$$

$$= \underline{64 \text{ cm}^3}$$

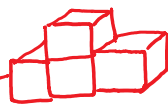
As a cube:

$$4 \text{ cm} \times 4 \text{ cm} \times 4 \text{ cm} = \underline{64 \text{ cm}^3}$$

8. Challenge: A rectangular wooden prism is made up of three pieces, each consisting of four cubes of wood glued together. Which of the pieces below has the same shape as the black piece?

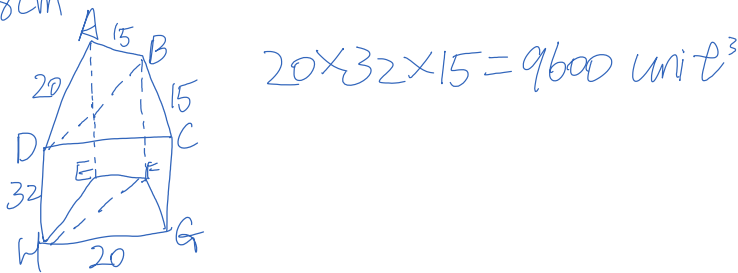
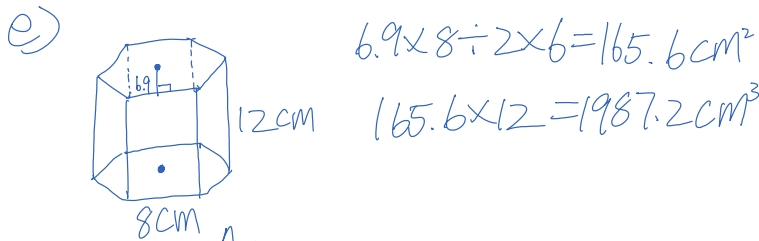
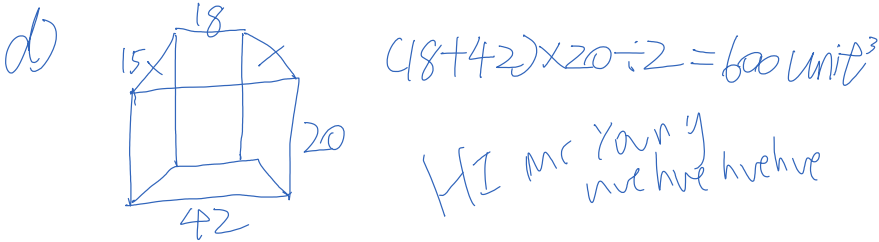
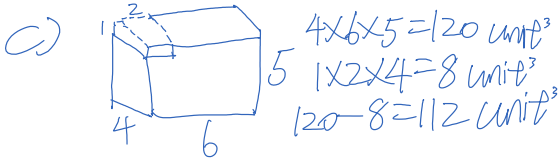
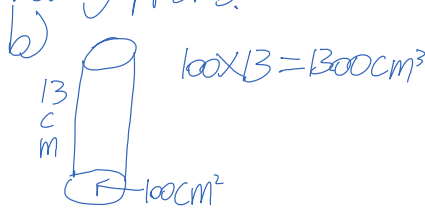
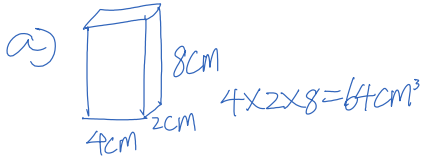


Each piece has 4 blocks.

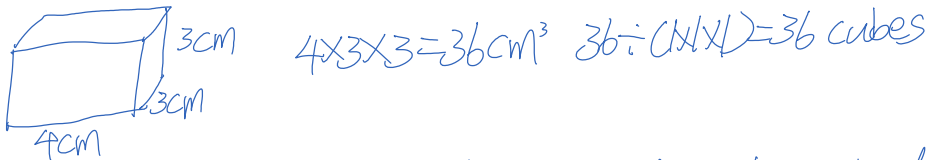


Math 8

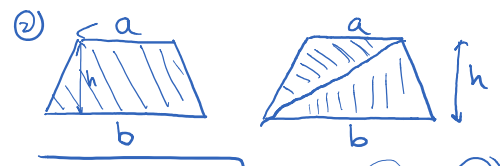
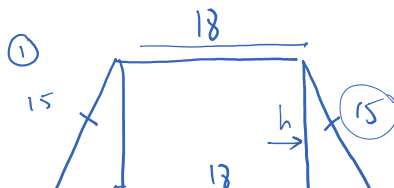
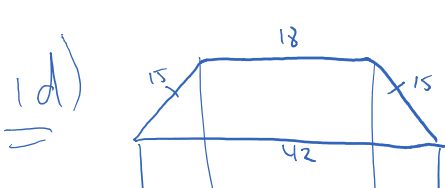
1. Find the volume of the following prisms.



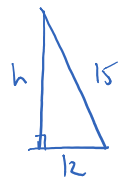
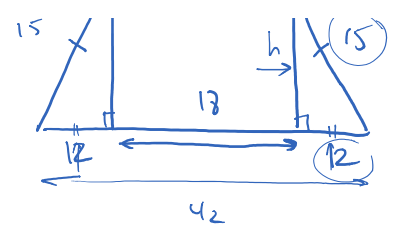
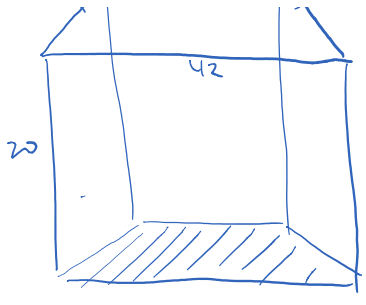
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101)

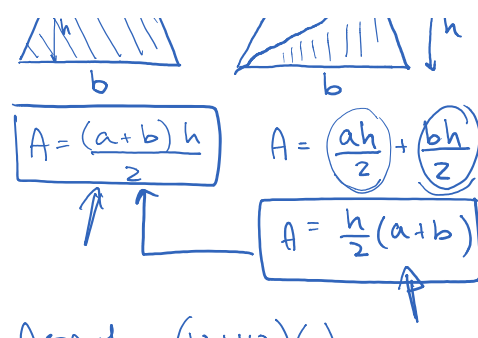


$$h^2 + 12^2 = 15^2$$

$$h^2 + 144 = 225$$

$$h^2 = 81$$

$$h = 9$$



Area of Base = $\frac{(18+42)}{2} \times 9$

$$= (30) \times 9$$

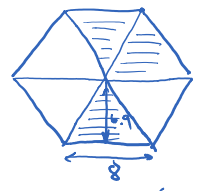
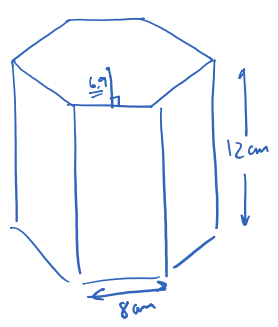
$$= 270$$

$$\text{Volume} = (\text{A of B}) \times H$$

$$= (270) \times 20$$

$$= 5400 \text{ units}^3$$

1e)



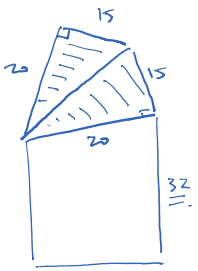
① A of Base = $\frac{8 \times 6.9}{2} \times 6$

② Vol = (A of Base) \times H

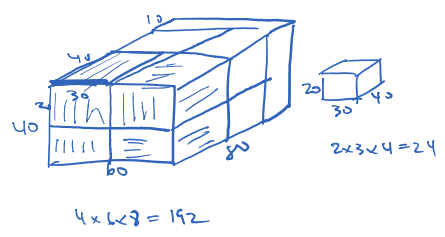
$$= \underline{\hspace{2cm}} \times 12$$

$$= \underline{\hspace{2cm}}$$

1f)



#3)



$$4 \times 6 \times 8 = 192$$

