

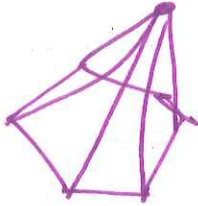
REVIEW: 3D Geometry

Accelerated 7th Grade Math

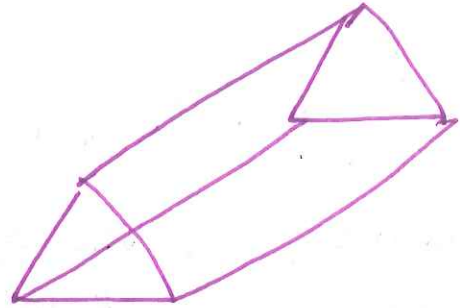
Name: _____

Draw the following 3-D shapes

1) pentagonal pyramid

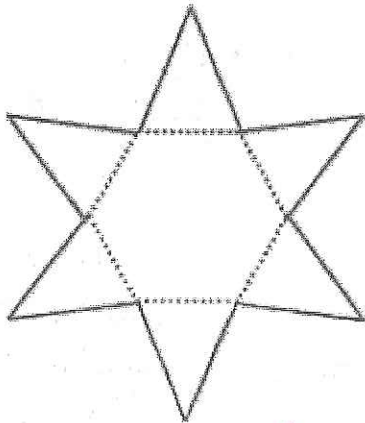


2) triangular prism



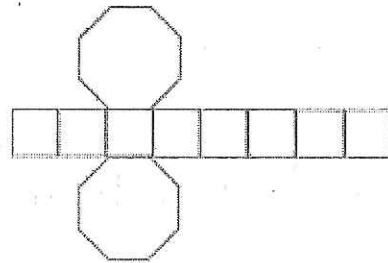
Name the following figures

3)



hexagonal pyramid

4)

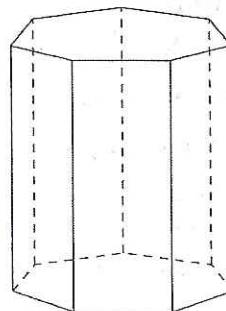


octagonal prism

5)



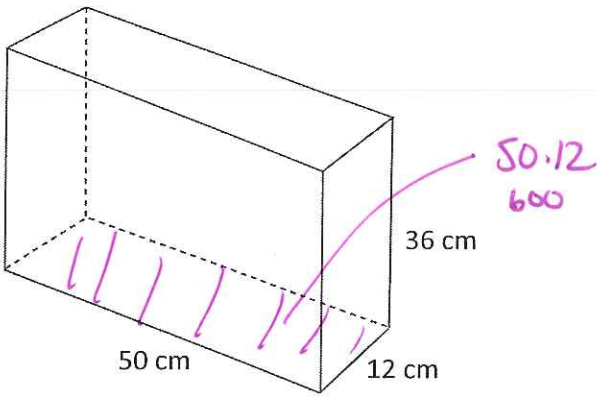
6)



heptagonal prism

For #7 – 15, find the surface area AND volume of the following shapes. Show all of your work and include units with your answer!

7)



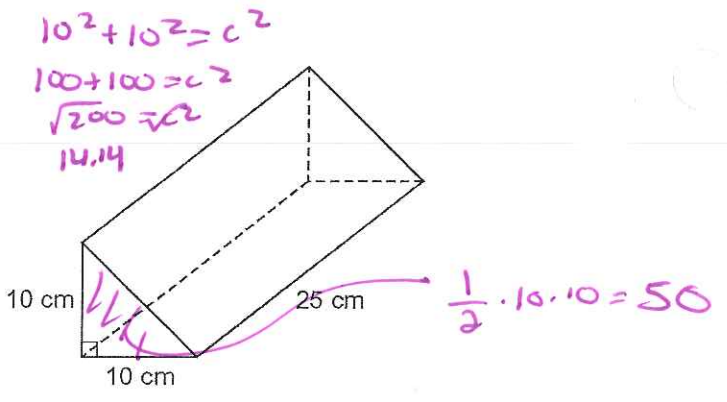
Surface Area

<u>TB</u>	<u>FB</u>	<u>LR</u>
$12 \cdot 50$	$36 \cdot 50$	$36 \cdot 12$
600×2	1800×2	432×2
1200	3600	864
$1200 + 3600 + 864 = 5664 \text{ cm}^2$		

Volume

$V = A \text{ of } B \cdot h$
 $600 \cdot 36 = 21,600 \text{ cm}^3$

8)



Surface Area

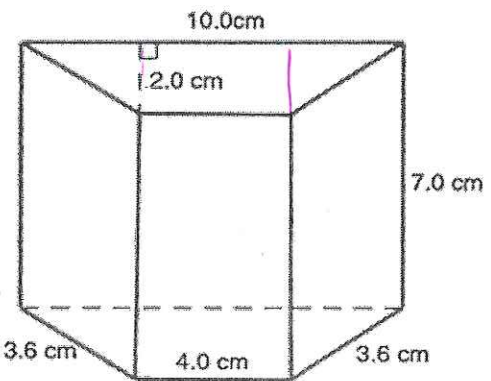
<u>2 tri</u>	<u>3 rect</u>
$\frac{1}{2} \cdot 10 \cdot 10$	$10 \cdot 25 = 250$
50	$10 \cdot 25 = 250$
	$14.14 \cdot 25 = 353.5$

$50 + 50 + 250 + 250 + 353.5 = 953.5 \text{ cm}^2$

Volume

$A \text{ of } B \cdot h = 50 \cdot 25 = 1250 \text{ cm}^3$

9)



Surface Area

4 rect
 $3.6 \cdot 7 = 25.2$
 $3.6 \cdot 7 = 25.2$
 $4 \cdot 7 = 28$
 $10 \cdot 7 = 70$
 148.4

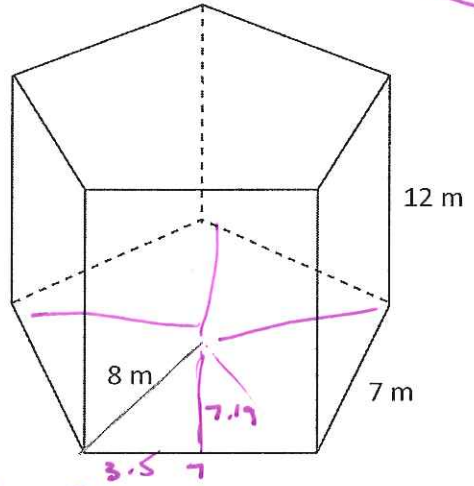
2 trapezoids
 $4 \cdot 2 = 8$
 $\frac{1}{2} \cdot 6 \cdot 2 = 6$
 $8 + 6 = 14$
 $14 \cdot 2 = 28$

$148.4 + 28 = 176.4 \text{ cm}^2$

Volume

$A \text{ of } B \cdot h$
 $14 \cdot 7 = 98 \text{ cm}^3$

10)



Surface Area

5 rect
 $7 \cdot 12 = 84$
 $84 \cdot 5 = 420$

2 pentagons

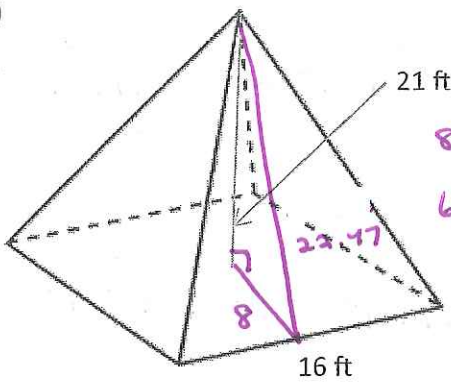
$\frac{1}{2} \cdot 7 \cdot 7.19 = 25.165$
 $25.165 \times 2 = 50.33$

$420 + 50.33 = 470.33 \text{ m}^2$

Volume

$A \text{ of } B \cdot h$
 $470.33 \cdot 12 = 5643.96 \text{ m}^3$

11)



$$8^2 + 21^2 = c^2$$

$$64 + 441 = c^2$$

$$505 = c^2$$

$$22.47 = c$$

Surface Area

1 square

$$16 \cdot 16 = 256$$

4 triangles

$$\frac{1}{2} \cdot 16 \cdot 22.47$$

$$179.76 \times 4$$

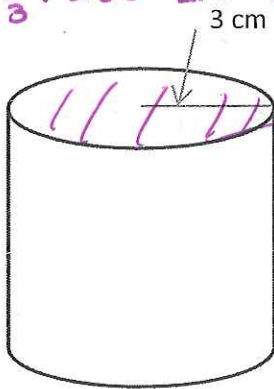
$$719.04$$

$$256 + 719.04 = 975.04 \text{ ft}^2$$

Volume

$$\frac{1}{3} A_{\text{ofB}} \cdot h$$

$$\frac{1}{3} \cdot 256 \cdot 21 = 1792 \text{ ft}^3$$



$$\pi \cdot 3^2$$

$$28.26$$

Surface Area

$$2\pi r^2 + 2\pi r h$$

$$2 \cdot 3.14 \cdot 3^2 + 2 \cdot 3.14 \cdot 3 \cdot 9$$

$$56.52 + 169.56$$

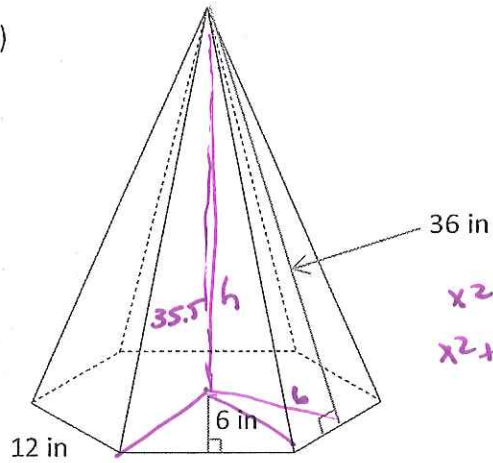
$$= 226.08 \text{ cm}^2$$

Volume

$$A_{\text{ofB}} \cdot h$$

$$28.26 \cdot 9 = 254.34 \text{ cm}^3$$

12)



$$x^2 + 6^2 = 36^2$$

$$x^2 + 36 = 1296$$

$$x^2 = 1260$$

$$x = 35.50$$

Surface Area

1 hexagon

$$\frac{1}{2} \cdot 6 \cdot 12$$

$$36$$

$$\times 6$$

$$216$$

6 triangles

$$\frac{1}{2} \cdot 12 \cdot 36 = 216$$

$$216 \times 6$$

$$1296$$

$$216 + 1296 = 1512 \text{ in}^2$$

Volume

$$\frac{1}{3} A_{\text{ofB}} \cdot h = \frac{1}{3} 216 \cdot 35.5 = 2556 \text{ in}^3$$

14)

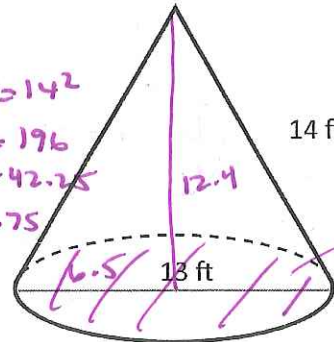
$$6.5^2 + x^2 = 14^2$$

$$42.25 + x^2 = 196$$

$$-42.25 \quad -42.25$$

$$x^2 = 153.75$$

$$x = 12.40$$



$$\pi \cdot 6.5^2$$

$$132.665$$

Surface Area

$$\pi r^2 + \pi r l$$

$$3.14 \cdot 6.5^2 + 3.14 \cdot 6.5 \cdot 14$$

$$132.665 + 285.74 = 418.41 \text{ ft}^2$$

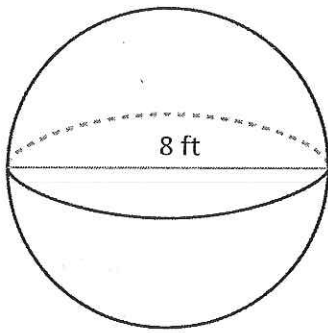
Volume

$$\frac{1}{3} A_{\text{ofB}} \cdot h$$

$$\frac{1}{3} \cdot 132.665 \cdot 12.4$$

$$548.35 \text{ ft}^3$$

15)



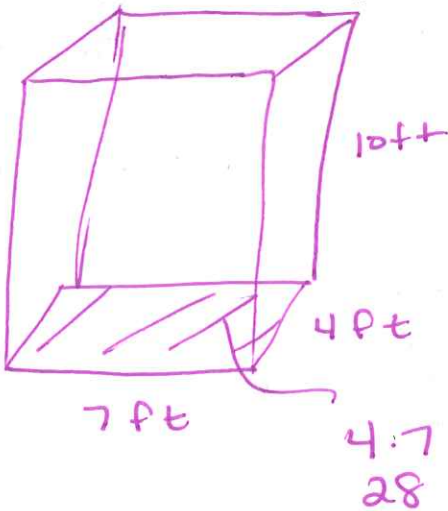
Surface Area

$$4\pi \cdot r^2 = 4 \cdot 3.14 \cdot 4^2 = 200.96 \text{ ft}^2$$

Volume

$$\frac{4}{3}\pi r^3 = \frac{4}{3} \cdot 3.14 \cdot 4^3 = 267.95 \text{ ft}^3$$

- 16) Farmer Jones is going to buy a water tank. Find how much water it will hold if it is a rectangular prism with a height of 10 feet, a length of 4 feet, and a width of 7 feet.



$$\text{Volume} = A \text{ of } B \cdot h$$

$$28 \cdot 10$$

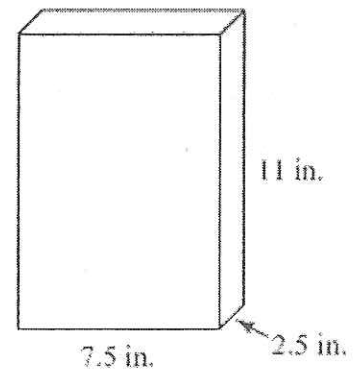
$$280 \text{ ft}^3$$

- 17) You are going to wrap the following box with pretty pink paper. How much paper will you need?

Surface Area

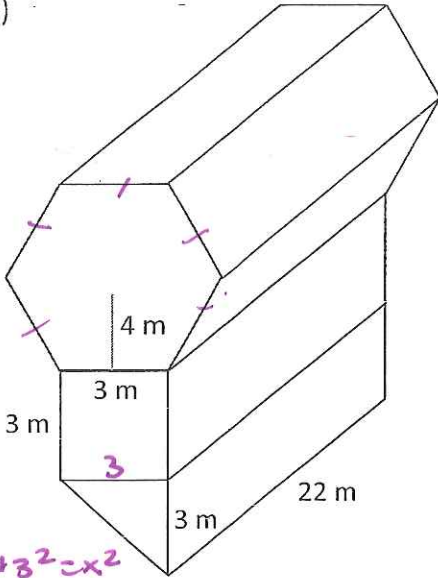
<u>TB</u>	<u>FB</u>	<u>LR</u>
7.5 · 2.5	7.5 · 11	11 · 2.5
18.75	82.5	27.5
× 2	× 2	× 2
37.5	165	55
+ +		

$$257.5 \text{ in}^2$$



Find the surface area and volume for #18 – 19.

18)



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

$$9 + 9 = x^2$$

$$18 = x^2$$

$$4.24 = x$$

Surface Area

$$3 \cdot 22 = 66$$

$$3 \cdot 22 = 66$$

$$3 \cdot 22 = 66 \times 5 = 330$$

$$3 \cdot 22 = 66$$

$$4.24 \cdot 22 = 93.28$$

$$\frac{1}{2} \cdot 3 \cdot 3 = 4.5 \times 2 = 9$$

$$3 \cdot 3 = 9 \times 2 = 18$$

$$\frac{1}{2} \cdot 3 \cdot 4 = 6 \times 6 = 36 \times 2 = 72$$

$$66 + 66 + 330 + 66 + 93.28 + 9 + 18 + 72$$

$$= 720.28 \text{ m}^2$$

Volume

Aof B \cdot h

$$49.5 \cdot 22$$

$$1089 \text{ m}^3$$

Aof B

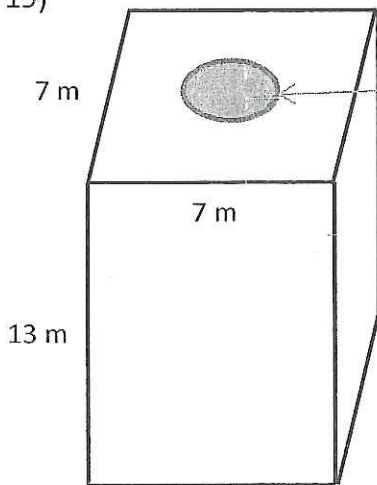
$$\frac{1}{2} \cdot 3 \cdot 3 = 4.5$$

$$3 \cdot 3 = 9$$

$$\frac{1}{2} \cdot 3 \cdot 4 = 6 \cdot 6 = 36$$

$$4.5 + 9 + 36 = 49.5$$

19)



Radius = 1.5 m
(Hole goes all the way through)

Surface Area

<u>outside</u>	<u>inside</u>	<u>JB</u>
$7 \cdot 13 = 91$	$2\pi r h$	$7 \cdot 7 = 49$
91×4	$2 \cdot 3.14 \cdot 1.5 \cdot 13$	$\pi \cdot 1.5^2$
364	122.46	7.065
		$49 - 7.065$
		41.935
		$\times 2$
		83.87

$$364 + 122.46 + 83.87 = 570.33 \text{ m}^2$$

Volume

Aof B \cdot h

$$41.935 \cdot 13 = 545.155 \text{ m}^3$$

- 20) A can of soup has a surface area of 125 in^2 and a volume of 240 in^3 . They sell another can that is 4 times larger in every dimension. Find the surface area and volume of the larger can. SHOW WORK!

Surface Area

$$4^2 = 16$$

$$125 \times 16$$

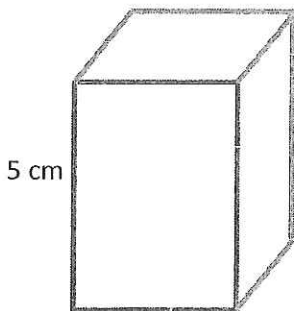
$$2000 \text{ in}^2$$

Volume

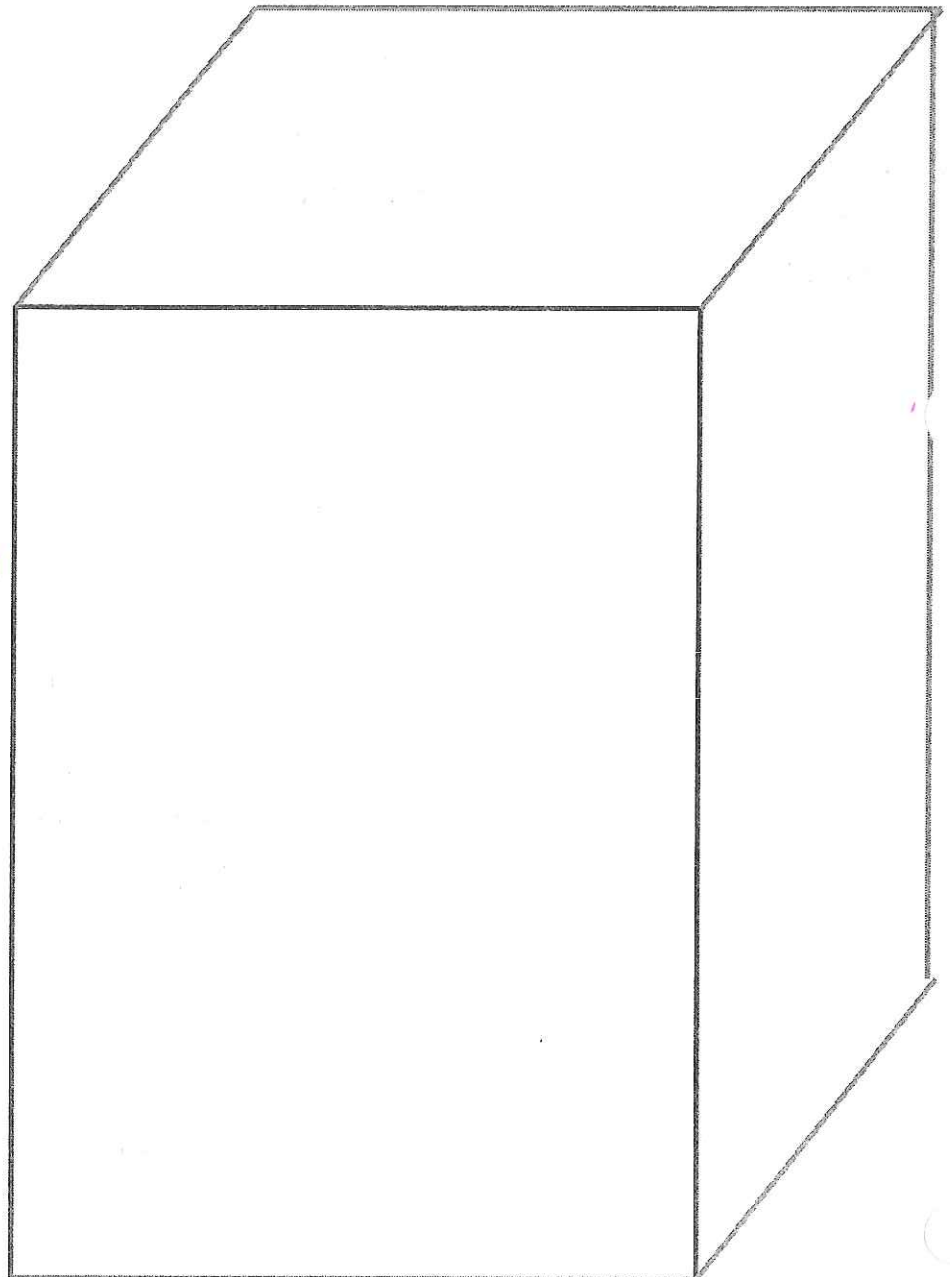
$$4^3 = 64$$

$$240 \times 64 = 15,360 \text{ in}^3$$

- 21) The surface area of the smaller box is 400 in^2 and the volume of the smaller box is 650 in^3 . Find the surface area and volume of the larger box. SHOW WORK! (The prisms are similar)



$\times 6$



Surface Area

$$6^2 = 36$$

$$400 \cdot 36 = 14,400 \text{ cm}^2$$

Volume

$$6^3 = 216$$

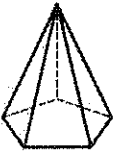
$$216 \cdot 650$$

$$140,400 \text{ cm}^3$$

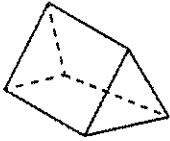
30 cm

3D Geometry Test Review Answers – 7th Accelerated Math

1.



2.



3. Hexagonal pyramid

4. Octagonal prism

5. Decagonal Pyramid

6. Heptagonal prism

7. $SA = 5664 \text{ cm}^2$ $V = 21,600 \text{ cm}^3$

8. $SA = 953.5 \text{ cm}^2$ $V = 1250 \text{ cm}^3$

9. $SA = 176.4 \text{ cm}^2$ $V = 98 \text{ cm}^3$

10. $SA = 545.825 \text{ cm}^2$ $V = 301.98 \text{ cm}^3$

11. $SA = 975.04 \text{ ft}^2$ $V = 1792 \text{ ft}^3$

12. $SA = 1512 \text{ in}^2$ $V = 2556 \text{ in}^3$

13. $SA = 226.03 \text{ cm}^2$ $V = 254.34 \text{ cm}^3$

14. $SA = 418.41 \text{ ft}^2$ $V = 548.35 \text{ ft}^3$

15. $SA = 200.96 \text{ ft}^2$ $V = 267.95 \text{ ft}^3$

16. 280 ft^3

17. 257.5 in^2

18. $SA = 720.28 \text{ m}^2$ $V = 1089 \text{ m}^3$

19. $SA = 570.33 \text{ m}^2$ $V = 545.155 \text{ m}^3$

20. $SA = 2000 \text{ in}^2$ $V = 15,360 \text{ in}^3$

21. $SA = 14,400 \text{ cm}^2$ $V = 140,400 \text{ cm}^3$

