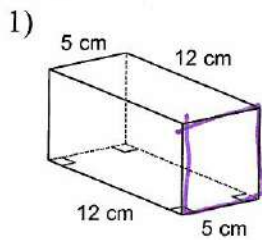


Surface Area and Volume Test Review

Name _____

Date _____ Period _____

Find the lateral area and surface area of each figure. Round your answers to the nearest hundredth, if necessary.



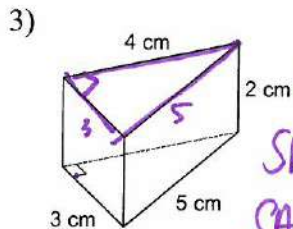
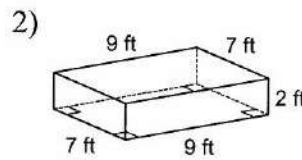
$$LA = ph$$

$$20 \cdot 12 = 240 \text{ cm}$$

$$SA = LA + 2B$$

$$240 + 2(25)$$

$$240 + 50 = 290 \text{ cm}^2$$

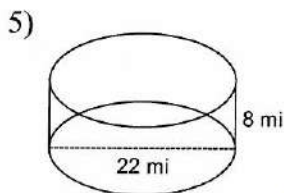
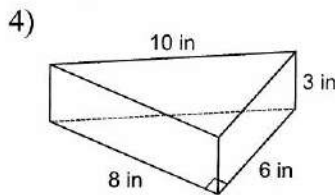


$$LA = 12 \cdot 2 = 24 \text{ cm}$$

$$SA = LA + 2B \left(\frac{1}{2} \cdot b \cdot h \right)$$

$$SA = 24 + 2 \left(\frac{1}{2} \cdot 4 \cdot 3 \right)$$

$$24 + 12 = 36 \text{ cm}^2$$



$$LA = 2\pi rh$$

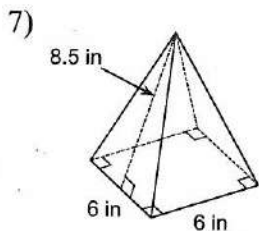
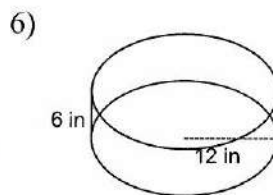
$$= 2\pi(11)(8)$$

$$= 552.92 \text{ mi}^2$$

$$SA = 2\pi rh + 2\pi r^2$$

$$552.92 + 2\pi(11)^2$$

$$= 1313.9 \text{ mi}^2$$



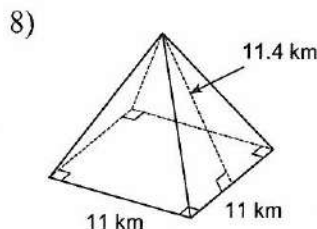
$$LA = \frac{1}{2}Pl$$

$$= \frac{1}{2}24(8.5)$$

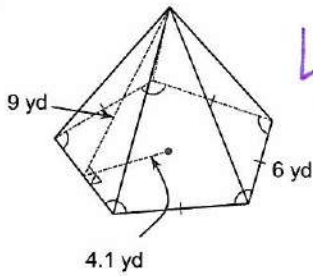
$$= 102 \text{ in}^2$$

$$SA = LA + B$$

$$102 + 36 = 138$$



9)



$$LA = \frac{1}{2} p l$$

$$= \frac{1}{2} (30) 9$$

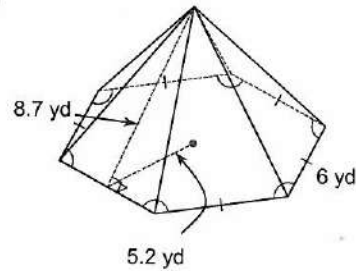
$$= 135 \text{ yd}^2$$

$$SA = LA + \frac{1}{2} \cdot a \cdot p$$

$$135 + \left(\frac{1}{2} \cdot 4.1 \cdot 30\right)$$

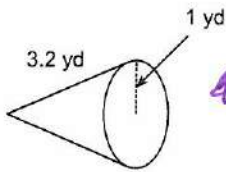
$$= 196.5 \text{ yd}^2$$

10)



Find the surface area of each figure. Round your answers to the nearest hundredth, if necessary.

11)



$$LA = \pi r l$$

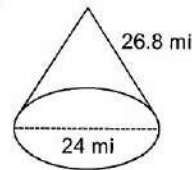
$$SA = LA + \pi r^2$$

$$LA = \pi r l$$

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

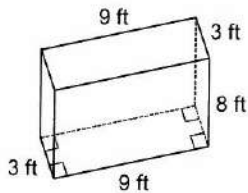
$$\pi (1)(3.2) + \pi (1)^2 = 13.19 \text{ yd}^2$$

12)



Find the volume of each figure. Round your answers to the nearest hundredth, if necessary.

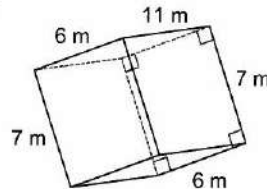
13)



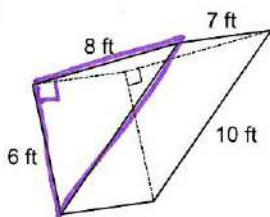
$$V = 3 \cdot 8 \cdot 9$$

$$= 216 \text{ ft}^3$$

14)



15)



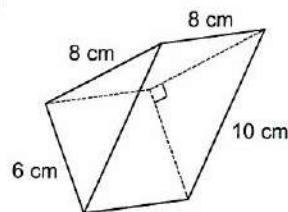
$$V = BH$$

$$V = \left(\frac{1}{2} \cdot b \cdot h\right) H$$

$$V = \left(\frac{1}{2} \cdot 8 \cdot 6\right) 7$$

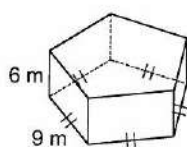
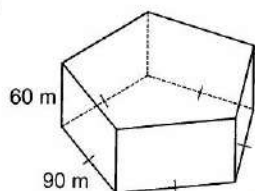
$$168 \text{ ft}^3$$

16)



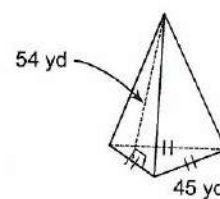
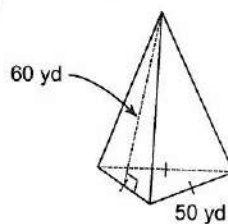
Are the two figures similar? If so, state the scale factor.

• 27)



$$\frac{60}{6} = \frac{90}{9} = \frac{10}{1}$$

• 28)



The similarity ratio between two similar figures is given. The surface area and volume of the smaller figure are given. Find the surface area and volume of the larger figure.

29) *scale factor* similarity ratio = $\frac{1}{2}$

$$SA = 16 \text{ ft}^2$$

$$V = 232 \text{ ft}^3$$

$$\frac{1^3}{2^3} = \frac{232}{x} \quad \frac{1^2}{2^2} = \frac{16}{x}$$

$$\frac{1}{8} = \frac{232}{x} \quad \frac{1}{4} = \frac{16}{x} \quad x = 64 \text{ ft}^2$$

$$x = 1856 \text{ ft}^3$$

30) similarity ratio = $\frac{3}{4}$

$$SA = 144 \text{ mi}^2$$

$$V = 5400 \text{ mi}^3$$

Some information about the surface area and volume of two similar solids has been given. Find the missing value.

• 31)

<u>Solid #1</u>	<u>Solid #2</u>
SA = 1280 cm ²	SA = 1620 cm ²
V = 12288 cm ³	V = ?

• 32)

<u>Solid #1</u>	<u>Solid #2</u>
SA = 20 ft ²	SA = 5 ft ²
V = 112 ft ³	V = ?

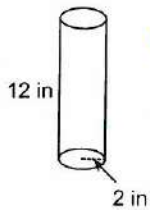
• 33)

<u>Solid #1</u>	<u>Solid #2</u>
SA = 6 in ²	SA = ?
V = 10 in ³	V = 270 in ³

• 34)

<u>Solid #1</u>	<u>Solid #2</u>
SA = 36 mi ²	SA = ?
V = 3456 mi ³	V = 16 mi ³

17)

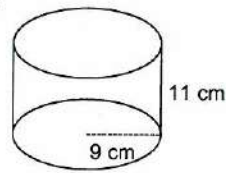


$$V = \pi r^2 h$$

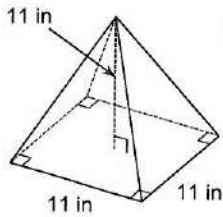
$$= \pi (2)^2 \cdot 12$$

$$= 150.8 \text{ in}^3$$

18)



19)

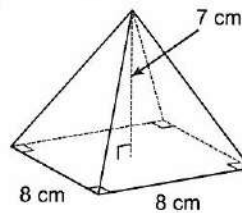


$$V = \frac{1}{3} B H$$

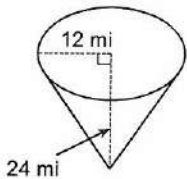
$$= \frac{1}{3} (11 \cdot 11) 11$$

$$= 443.6 \text{ in}^3$$

20)



21)

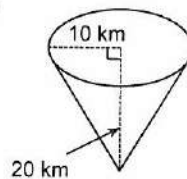


$$V = \frac{1}{3} \pi r^2 h$$

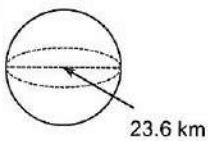
$$= \frac{1}{3} \pi (12)^2 \cdot 24$$

$$= 3619.11$$

22)



23)

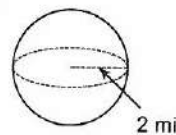


$$V = \frac{4}{3} \pi r^3$$

$$= \frac{4}{3} \pi (11.8)^3$$

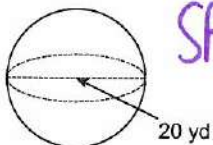
$$= 6882.32 \text{ km}^3$$

24)



Find the surface area of each figure. Round your answers to the nearest hundredth, if necessary.

25)



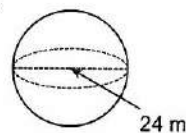
$$SA = 4\pi r^2$$

$$= 4\pi (20)^2$$

$$= 400\pi$$

$$= 1256.64 \text{ yd}^2$$

26)



Answers to Surface Area and Volume Test Review (ID: 1)

- | | | | |
|---|---|---|---|
| 1) 170 cm^2 ; 290 cm^2 | 2) 64 ft^2 ; 190 ft^2 | 3) 24 cm^2 ; 36 cm^2 | 4) 72 in^2 ; 120 in^2 |
| 5) 552.92 mi^2 ; 1313.19 mi^2 | 6) 452.39 in^2 ; 1357.17 in^2 | 7) 102 in^2 ; 138 in^2 | |
| 8) 250.8 km^2 ; 371.8 km^2 | 9) 135 yd^2 ; 196.5 yd^2 | 10) 156.6 yd^2 ; 250.2 yd^2 | 11) 13.19 yd^2 |
| 12) 1462.73 mi^2 | 13) 216 ft^3 | 14) 462 m^3 | 15) 168 ft^3 |
| 16) 192 cm^3 | 17) 150.8 in^3 | 18) 2799.16 cm^3 | 19) 443.67 in^3 |
| 20) 149.33 cm^3 | 21) 3619.11 mi^3 | 22) 2094.4 km^3 | 23) 6882.32 km^3 |
| 24) 33.51 mi^3 | 25) 1256.64 yd^2 | 26) 1809.56 m^2 | 27) Yes; 10 : 1 |
| 28) Yes; 10 : 9 | 29) $\text{SA} = 64 \text{ ft}^2$, $V = 1856 \text{ ft}^3$ | 30) $\text{SA} = 256 \text{ mi}^2$, $V = 12800 \text{ mi}^3$ | |
| 31) $V = 17496 \text{ cm}^3$ | 32) $V = 14 \text{ ft}^3$ | 33) $\text{SA} = 54 \text{ in}^2$ | 34) $\text{SA} = 1 \text{ mi}^2$ |