Name Answers Date

Geometry – Review

Complete the formulas for the following:

Area of a triangle = $\frac{1}{2}bh$

Area of a parallelogram = bh

Area of a trapezoid = $\frac{1}{2}(b_1+b_2)h$

Area of a circle = πr^2

Circumference of a circle = πd

Volume of a prism = BH

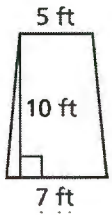
Volume of a cylinder = BH or $\pi r^2 H$

Volume of a cone = $\frac{1}{3}BH$ or $\frac{1}{3}\pi r^2 H$

Volume of a sphere = $\frac{4}{3}\pi r^3$

Find the areas of the following. Show work (formula and algebraic steps). Round to the nearest tenth, if necessary.

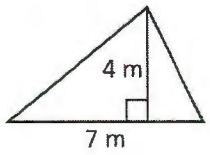
1)



$A = \frac{1}{2}(b_1+b_2)h$
$= \frac{1}{2}(5+7)10$
$= \frac{1}{2}(12)10$
$= 60$

A = $60\ ft^2$

2)



$A = \frac{1}{2}bh$
$= \frac{1}{2} \cdot 7 \cdot 4$
$= 14$

A = $14\ m^2$

Find the circumference (perimeter) and area of the following. Use 3.14 for π.

3)

$C = \pi d$
$= 3.14 \times 30$
$= 94.2\ ft$

$A = \pi r^2$
$= 3.14 \times 15^2$
$= 706.5\ ft^2$

C = $94.2\ ft$

A = $706.5\ ft^2$

4)

$C = \pi d$
$= 3.14 \times 17$
$= 53.38$

$\frac{53.38}{2} = 26.69$

$P = 26.69 + 17 = 43.69$

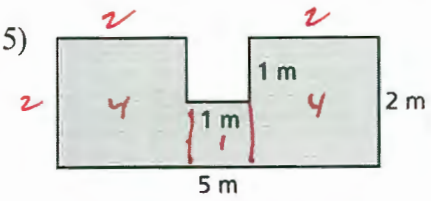
$A = \frac{1}{2}\pi r^2$
$= \frac{1}{2} \cdot 3.14 \cdot 8.5^2$
$= \frac{1}{2} \cdot 226.865$
$= 113.4325$

C = $43.69\ m$

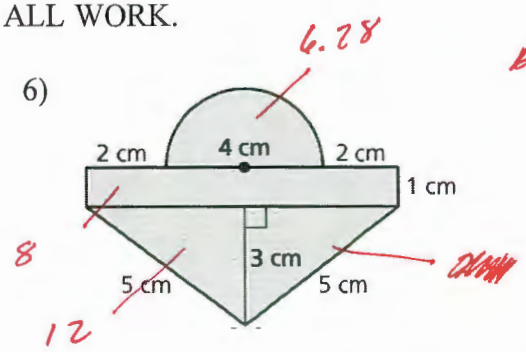
A = $113.4325\ m^2$

Find the perimeter AND areas of the following. SHOW ALL WORK.

5)



6)



$P = \frac{1}{2}\pi d + 2 + 1 + 5 + 5 + 1 + 2$

$= \frac{1}{2} \cdot 3.14 \cdot 4 + 16$

$= 6.28 + 16$

$= 22.28$

$A = 6.28 + 8 + 12$

$= 26.28$

P = 16 m

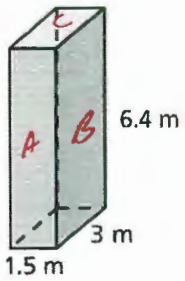
A = 9 m²

P = 22.28 cm

A = 26.28 cm²

Find the surface area AND volume of the prisms. Show work (formula and algebraic steps).

7)



$A = 9.6 \times 2 = 19.2$

$B = 19.2 \times 2 = 38.4$

$C = 4.5 \times 2 = 9$

66.6

$V = Bh$

$= lw \times lh$

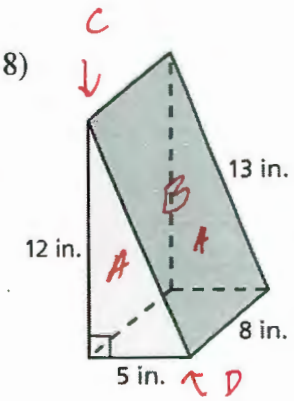
$= 3 \times 1.5 \times 6.4$

$= 28.8$

SA = 66.6 m²

V = 28.8 m³

8)



$A = 30 \times 2 = 60$

$B = 104$

$C = 96$

$D = 40$

300

$V = Bh$

$V = \frac{1}{2} bh \times lh$

$= \frac{1}{2} \times 5 \times 12 \times 8$

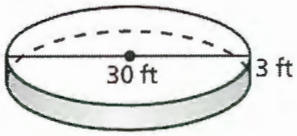
$= 240$

SA = 300 in²

V = 240 in³

Find the volume of the following. Show work (formula and algebraic steps). Round to the nearest tenth if necessary.

9)



$V = Bh$

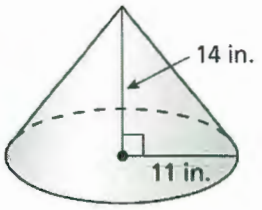
$= \pi r^2 h$

$= 3.14 \times 15^2 \times 3$

$= 2119.5$

V = 2119.5 ft³

10)



$V = \frac{1}{3}Bh$

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

$= \frac{1}{3} \times 3.14 \times 11^2 \times 14$

$= \frac{1}{3} \times 5319.16$

$= 1773.0533\ldots$

V = 1773.1 in³

11)

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

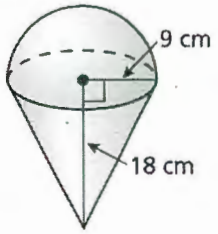
$= \frac{4}{3} \times 3.14 \times 5.4^3$

$= \frac{4}{3} \times 494.43696$

$= 659.24928$

V = 659.2 m³

12)



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

$= \frac{4}{3} \cdot 3.14 \cdot 9^3$

$= 3052.08$

$\frac{3052.08}{2} = 1526.04$

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

$= \frac{1}{3} \cdot 3.14 \cdot 9^2 \cdot 18$

$= 1526.04$

Total = 1526.04 + 1526.04 = 3052.08

V = 3052.1 cm³

Find the missing measure. Show work (formula and algebraic steps).

13) Conan believes that a triangle with an area 120 m² and a base of 10 meters has a height of 12 meters. Is he correct? Show why or why not.

$A = \frac{1}{2}bh$

$120 = \frac{1}{2} \times 10 \cdot h$

$\frac{120}{5} = \frac{5h}{5}$

$24\ m = h$

It needs to have a height of 24 m.

14) Frannie Factoid told Janice, while standing in line at the post office, that the area of a DVD is 19.625 in². Will the DVD fit in a 4-inch opening of an envelope?

19.625 in²

$A = \pi r^2$

$\frac{19.625}{3.14} = \frac{3.14r^2}{3.14}$

$6.25 = r^2$

$2.5 = r$

No, too long → $5 = d$

15) A triangular prism has a volume of 63 cm^3. The height of the prism is 3.5 cm and the measure of the base of the triangle is 9 cm. Find the height of triangular base?

$V = BH$

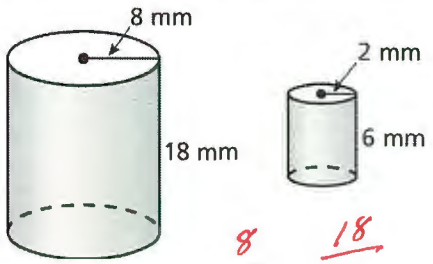
$V = \frac{1}{2}bh \cdot H$

$63 = \frac{1}{2} \cdot 9 \cdot h \cdot 3.5$

$\frac{63}{15.75} = \frac{15.75 \cdot h}{15.75}$

$4\text{ cm} = h$

16) Determine whether the solids are similar.



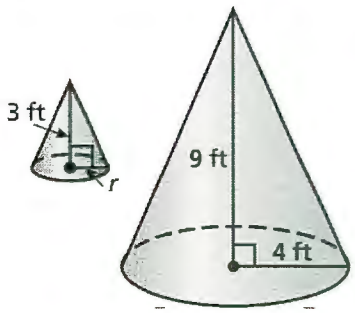
$\frac{8}{2}$ $\frac{18}{6}$

$\frac{4}{1}$ $\frac{3}{1}$

No. Dimensions not proportional.

The solids are similar. Find the missing dimension(s).

16)



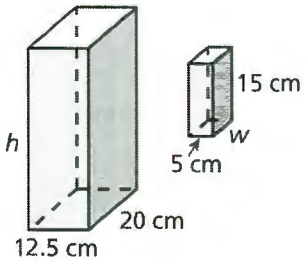
$\frac{3}{9} = \frac{r}{4}$

$9r = 12$

$r = 1.\overline{3}$

r = $1.\overline{3}$ ft

17)



$\frac{12.5}{5} = \frac{h}{15}$

$h = 37.5$

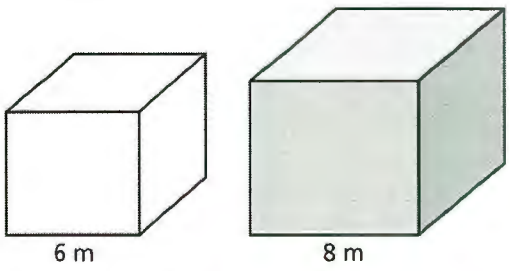
$\frac{12.5}{5} = \frac{20}{w}$

$w = 8$

h = 37.5 cm w = 8 cm

The solids are similar. Find the surface area or volume of the shaded solid.

18)



Surface Area = 198 m^2

Scale factor

$\frac{6}{8} = \frac{3}{4}$

$\frac{9}{16} = \frac{198}{x}$

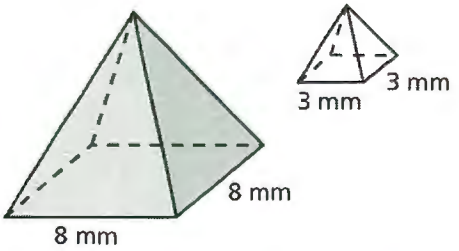
$\frac{9x}{9} = \frac{3168}{9}$

$x = 352$

Surface area = 352 m^2

19)

Volume = 54 mm^3



Scale factor $\frac{8}{3}$

$\frac{512}{27} = \frac{x}{54}$

$\frac{27x}{27} = \frac{27648}{27}$

$x = 1024$

Volume = 1024 mm^3