

Agenda: Geometry

This unit will span over 4 class periods.

Day 1 Perimeter and Area

Give Unit Pretest

Number Power 4 pages 88 – 92 and 110 - 113

Day 2: Area and Volume

Working with the GED Formula sheet cover worksheet 2

Day 3: Perimeter, Area, and Volume

Working with the GED Formula sheet cover worksheet 3

Day 4: Volume and Surface Area

Working with the GED Formula sheet cover worksheet 4

Give Unit Posttest

Name Geometry: Perimeter, Area, and Volume

Date 10/9/17

Pretest: Circle the number of your proficiency in the following areas.

Posttest: Put an X on the number of your proficiency in the following areas.

Unit: GED Geometry

Standards: MP.2, Q.4.a – Q.4.e

Learning Goal: Student can distinguish between Perimeter, Area, and Volume problems, and use the correct formula to arrive at the solution

GOALS				
4	Student is highly successful (> 85%) at solving Perimeter, Area, and Volume problems, and can show others how to solve problems			
0	1	2	3	4
3	Student can distinguish between Perimeter, Area, and Volume problems, and use the correct formula to arrive at the solution			
0	1	2	3	4
2	Student can sometimes (> 50%) identify and work with Perimeter, Area, and Volume problems. Perimeter is length around the outside of a shape Area is the amount found inside a 2D shape. Volume is the amount of space inside a 3D shape			
0	1	2	3	4
1	Student has an understanding of the difference between Perimeter and Area			
0	1	2	3	4

2014 GED® PROGRAM

MATH

FORMULAS & SYMBOLS

Use this guide to focus on applying, rather than memorizing, formulas and symbols for test questions

Mathematics Formula Explanations

This displays formulas relating to geometric measurement and certain algebra concepts and is available on the 2014 GED® test — Mathematical Reasoning

Area of a:

square	$A = s^2$
rectangle	$A = lw$
parallelogram	$A = bh$
triangle	$A = \frac{1}{2}bh$
trapezoid	$A = \frac{1}{2}h(b_1 + b_2)$
circle	$A = \pi r^2$

Perimeter of a:

square	$P = 4s$
rectangle	$P = 2l + 2w$
triangle	$P = s_1 + s_2 + s_3$
Circumference of a circle	$C = 2\pi r$ OR $C = \pi d$, $\pi \approx 3.14$

Surface area and volume of a:

rectangular prism	$SA = 2lw + 2lh + 2wh$	$V = lwh$
right prism	$SA = ph + 2B$	$V = Bh$
cylinder	$SA = 2\pi rh + 2\pi r^2$	$V = \pi r^2 h$
pyramid	$SA = \frac{1}{2}ps + B$	$V = \frac{1}{3}Bh$
cone	$SA = \pi rs + \pi r^2$	$V = \frac{1}{3}\pi r^2 h$
sphere	$SA = 4\pi r^2$	$V = \frac{4}{3}\pi r^3$

p = perimeter of base with area B , $\pi \approx 3.14$

Data

mean	mean is equal to the total of the values of a data set, divided by the number of elements in the data set
median	median is the middle value in an odd number of ordered values of a data set, or the mean of the two middle values in an even number of ordered values in a data set

Algebra

slope of a line	$m = \frac{y_2 - y_1}{x_2 - x_1}$
slope-intercept form of the equation of a line	$y = mx + b$
point-slope form of the equation of a line	$y - y_1 = m(x - x_1)$
standard form of a quadratic equation	$y = ax^2 + bx + c$
quadratic formula	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
Pythagorean theorem	$a^2 + b^2 = c^2$
simple interest	$I = Prt$ (I = interest, P = principal, r = rate, t = time)
distance formula	$d = rt$
total cost	total cost = (number of units) \times (price per unit)

Æ Symbol Tool Explanation

The 2014 GED® test on computer contains a tool known as the “Æ Symbol Tool.” Use this guide to learn about entering special mathematical symbols into fill-in-the-blank item types

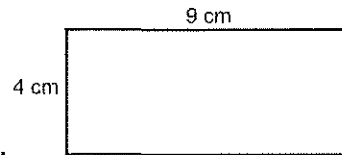
Symbol	Explanation	Symbol	Explanation	Symbol	Explanation
π	π	$ $	absolute value	$-$	minus or negative
f	function	\times	multiplication	$($	open or left parenthesis
\geq	greater than or equal to	\div	division	$)$	close or right parenthesis
\leq	less than or equal to	\pm	positive or negative	$>$	greater than
\neq	not equal to	∞	infinity	$<$	less than
2	2 exponent (“squared”)	$\sqrt{\quad}$	square root	$=$	equals
3	3 exponent (“cubed”)	$+$	plus or positive		



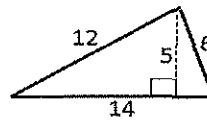
Geometry Pretest

Directions: Supply the GED Math Formula sheet.

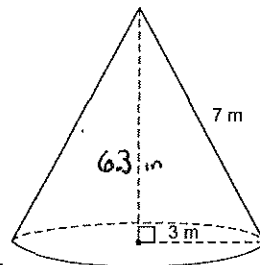
1. Find the perimeter and area for the rectangle.



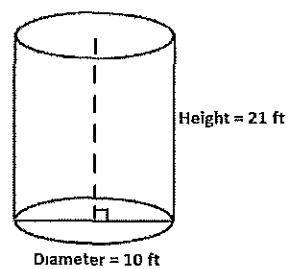
2. Find the area and perimeter of the triangle.



3. Find the volume of the cone.

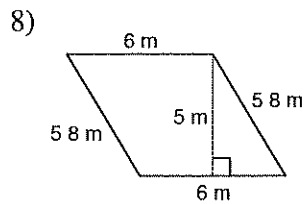
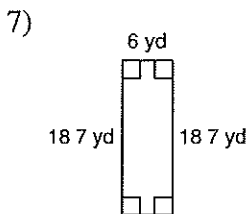
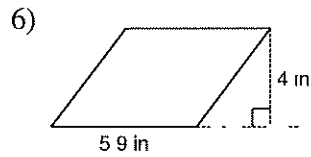
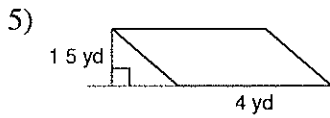
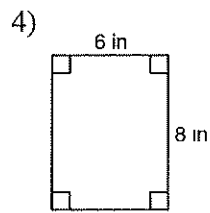
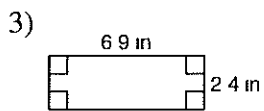
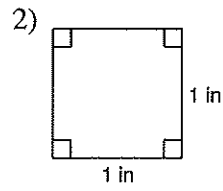
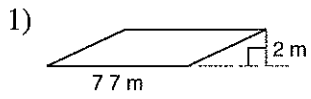


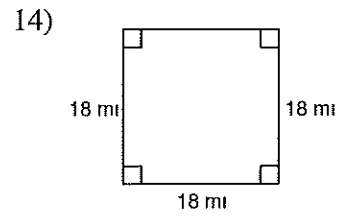
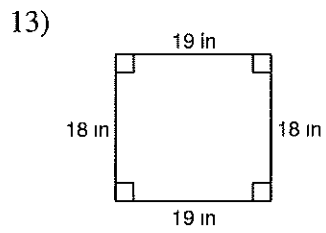
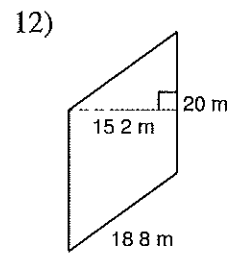
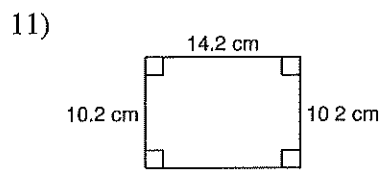
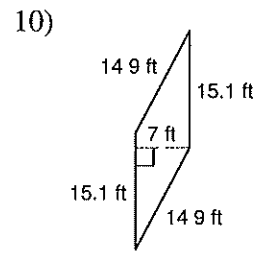
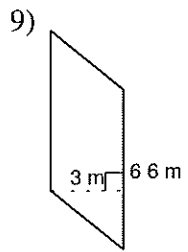
4. Find the volume and surface area of the cylinder.



Area of Squares, Rectangles, and Parallelograms

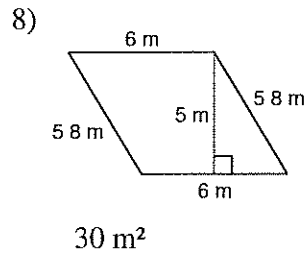
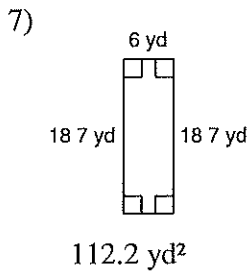
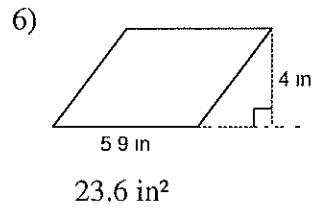
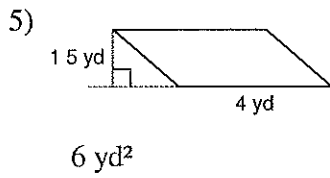
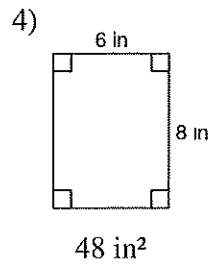
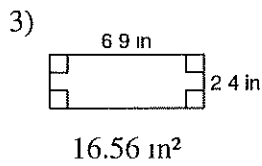
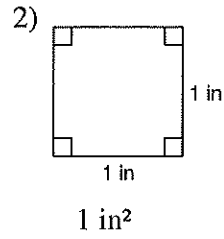
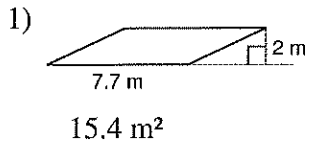
Find the area of each.

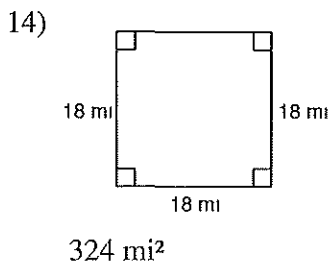
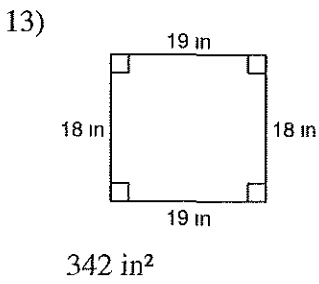
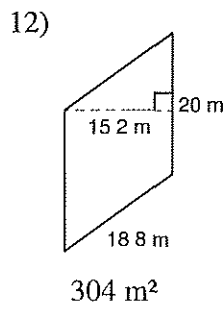
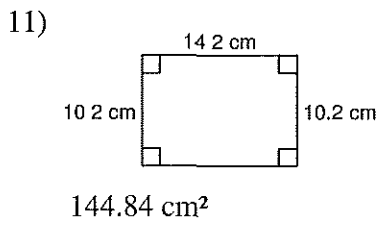
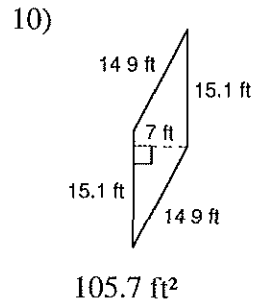
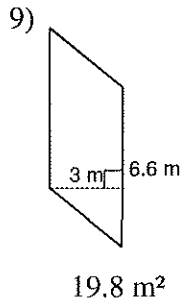




Area of Squares, Rectangles, and Parallelograms

Find the area of each.

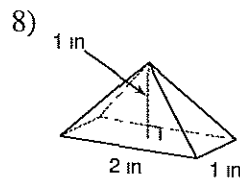
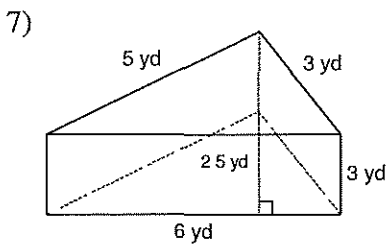
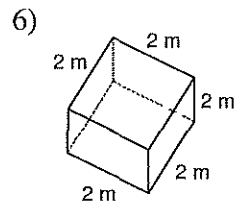
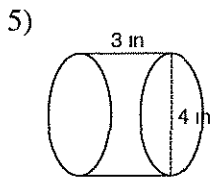
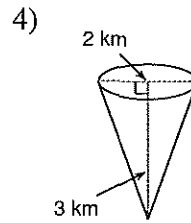
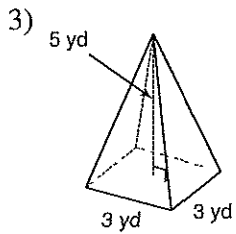
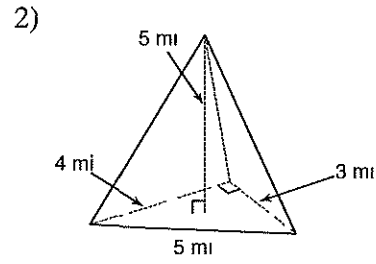
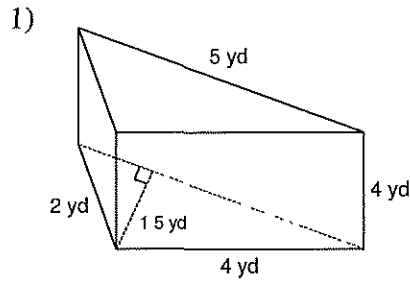


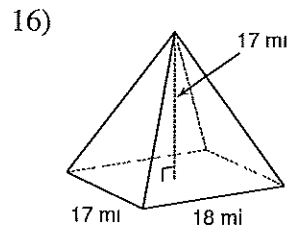
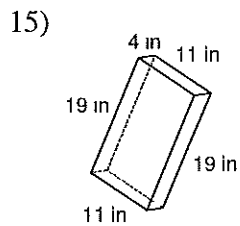
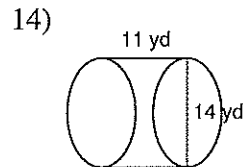
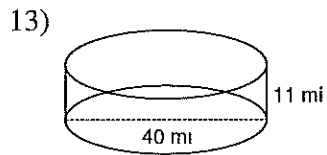
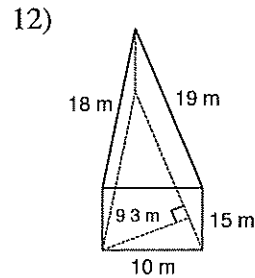
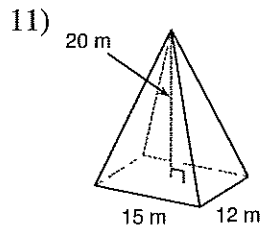
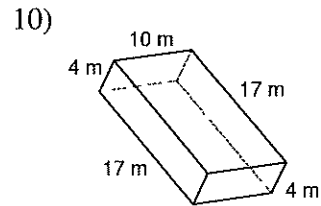
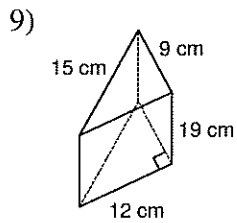


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Volumes of Solids

Find the volume of each figure. Round to the nearest tenth.





17) A cylinder with a radius of 3 cm and a height of 7 cm.

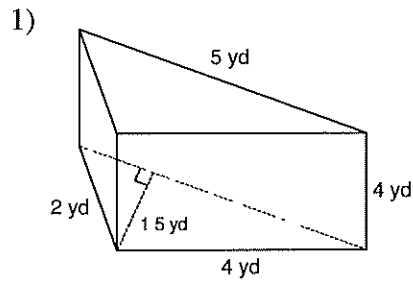
18) A cone with diameter 20 cm and a height of 20 cm.

19) A cone with diameter 14 yd and a height of 14 yd.

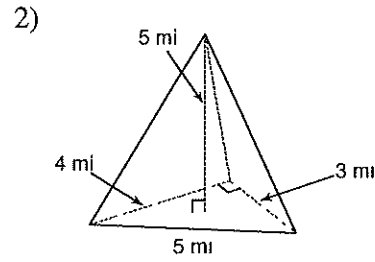
20) A rectangular prism measuring 10 m and 7 m along the base and 12 m tall.

Volumes of Solids

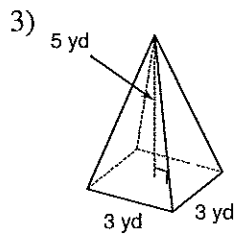
Find the volume of each figure. Round to the nearest tenth.



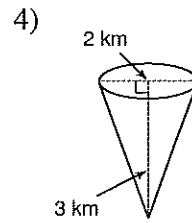
15 yd^3



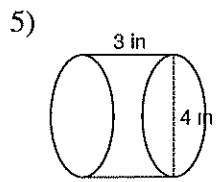
10 mi^3



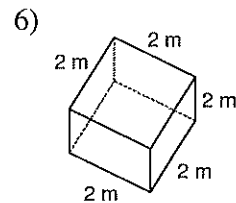
15 yd^3



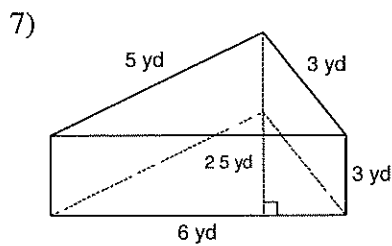
3.1 km^3



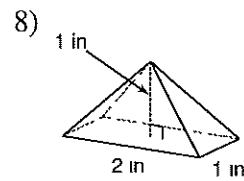
37.7 in^3



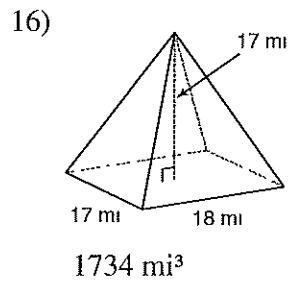
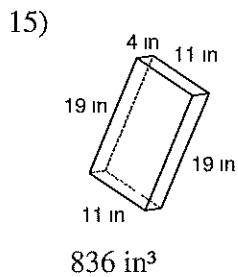
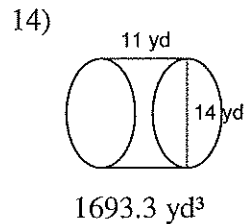
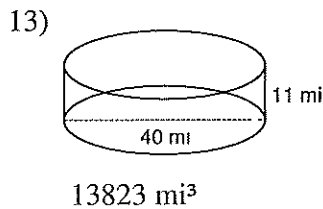
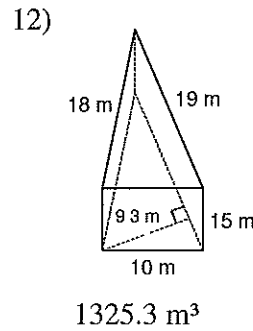
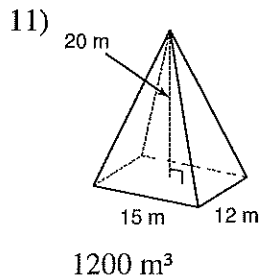
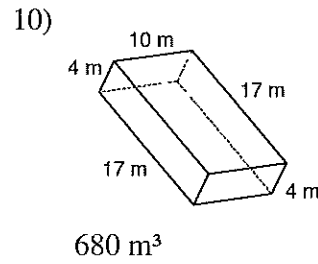
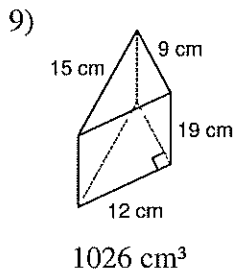
8 m^3



22.5 yd^3



0.7 in^3



17) A cylinder with a radius of 3 cm and a height of 7 cm.
197.9 cm³

18) A cone with diameter 20 cm and a height of 20 cm.
2094.4 cm³

19) A cone with diameter 14 yd and a height of 14 yd.
718.4 yd³

20) A rectangular prism measuring 10 m and 7 m along the base and 12 m tall.
840 m³

Surface Area and Volume, Factoring Review

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Find the area of each.

1) radius = 2 m

2) diameter = 10 ft

3) circumference = 24π in

4) circumference = 18π cm

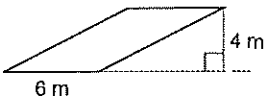
Find the diameter of each circle.

5) area = 16π mi²

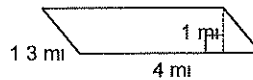
6) area = 49π in²

Find the area of each.

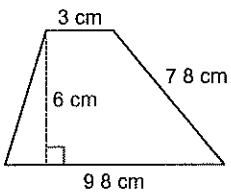
7)



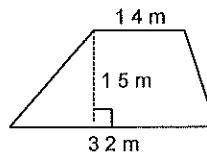
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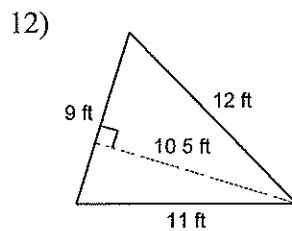
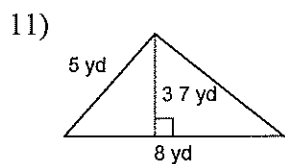


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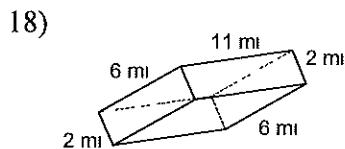
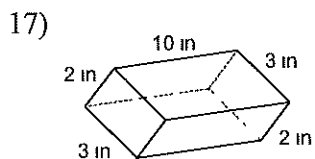
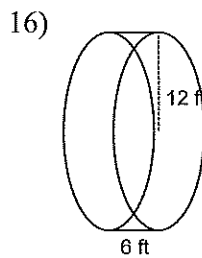
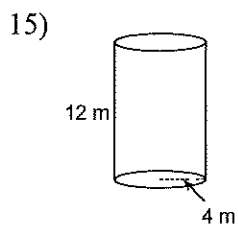
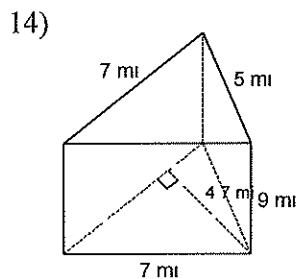
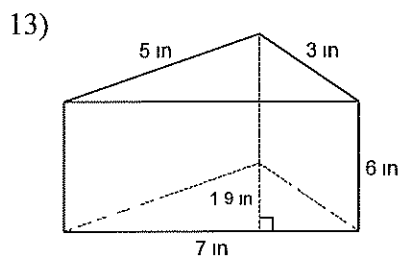


10)

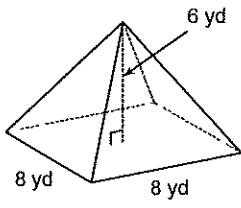




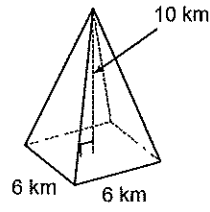
Find the volume of each figure. Round to the nearest tenth.



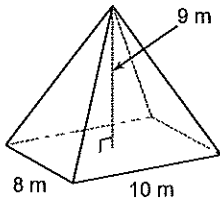
19)



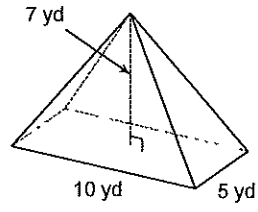
20)



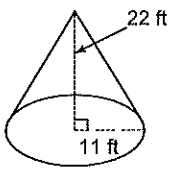
21)



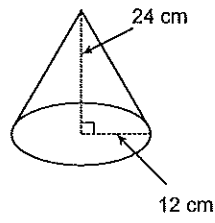
22)



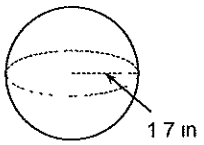
23)



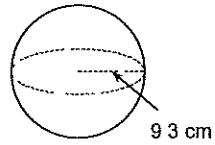
24)



25)

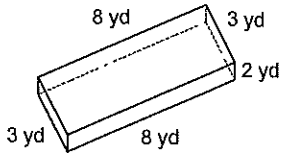


26)

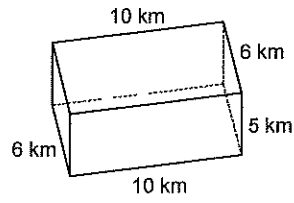


Find the surface area of each figure. Round to the nearest tenth.

27)

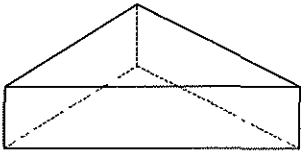


28)

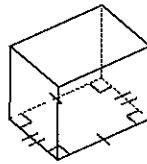


Name each figure.

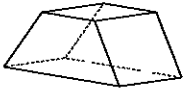
29)



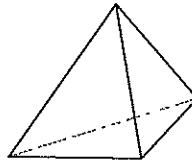
30)



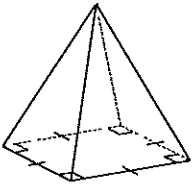
31)



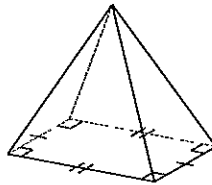
32)



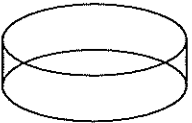
33)



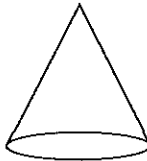
34)



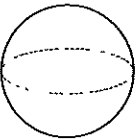
35)



36)



37)



Surface Area and Volume, Factoring Review

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Find the area of each.

1) radius = 2 m

$4\pi \text{ m}^2$

2) diameter = 10 ft

$25\pi \text{ ft}^2$

3) circumference = 24π in

$144\pi \text{ in}^2$

4) circumference = 18π cm

$81\pi \text{ cm}^2$

Find the diameter of each circle.

5) area = $16\pi \text{ mi}^2$

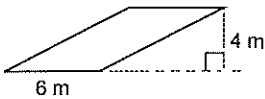
8 mi

6) area = $49\pi \text{ in}^2$

14 in

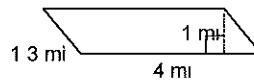
Find the area of each.

7)



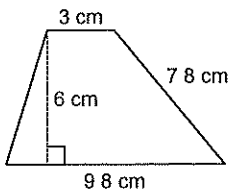
24 m^2

8)



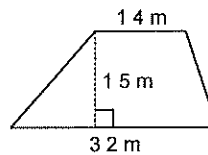
4 mi^2

9)

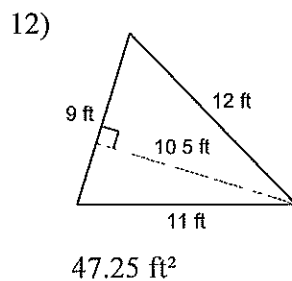
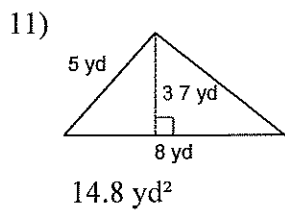


38.4 cm^2

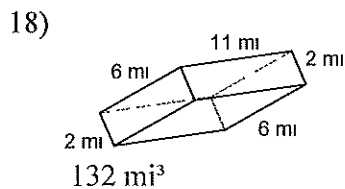
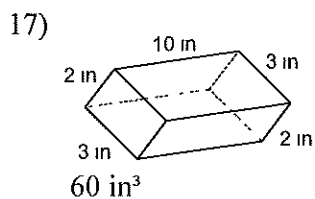
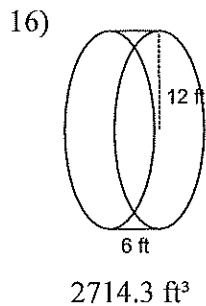
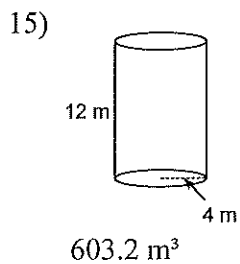
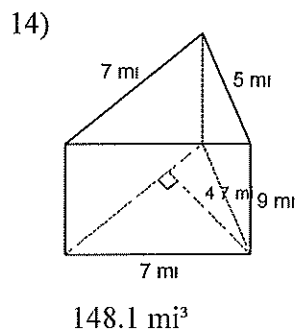
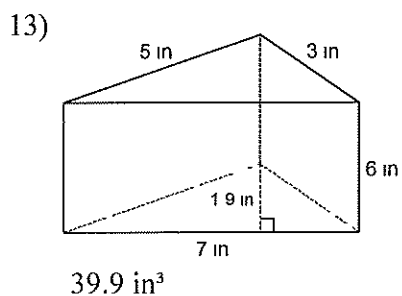
10)



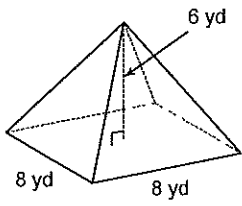
3.45 m^2



Find the volume of each figure. Round to the nearest tenth.

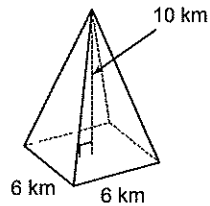


19)



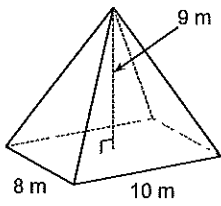
128 yd³

20)



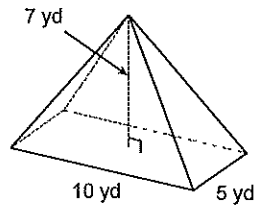
120 km³

21)



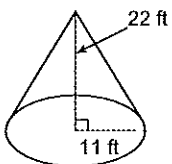
240 m³

22)



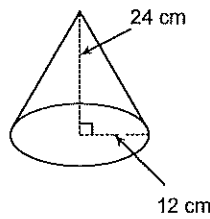
116.7 yd³

23)



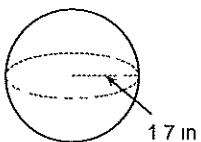
2787.6 ft³

24)



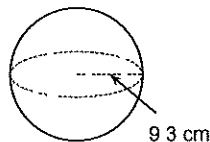
3619.1 cm³

25)



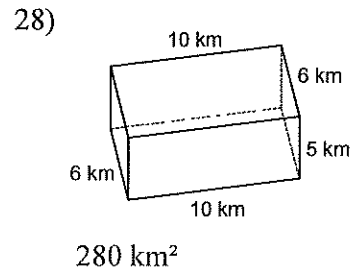
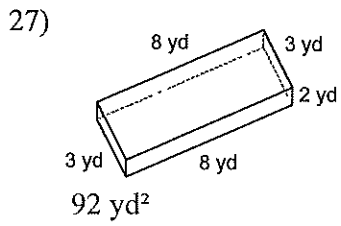
20.6 in³

26)

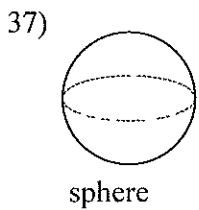
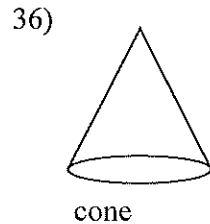
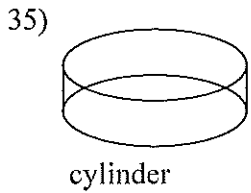
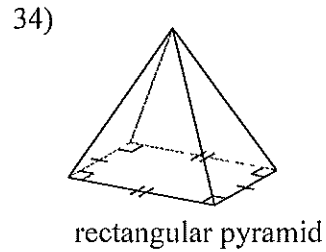
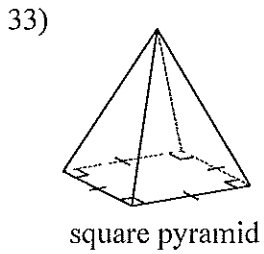
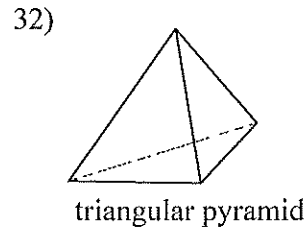
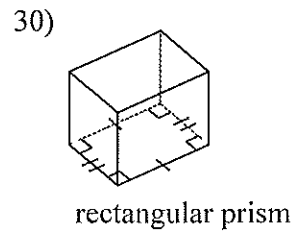
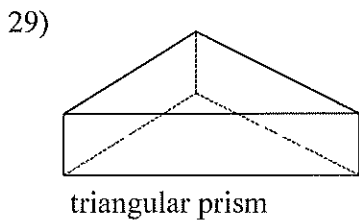


3369.3 cm³

Find the surface area of each figure. Round to the nearest tenth.

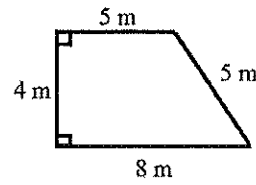


Name each figure.

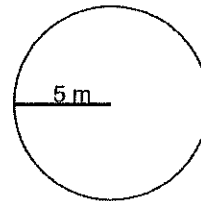


Geometry Posttest

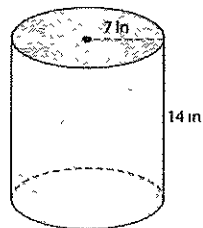
Directions: Supply the GED Math Formula sheet.



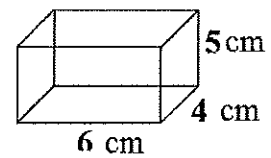
1. Find the perimeter and area of the trapezoid.



2. Find the circumference and area of the circle.



3. Find the volume of the cylinder.



4. Find the volume and surface area of the rectangular prism.

Pre/Post Tests Answers

Pretest Answers:

1. $P = 26\text{cm}$, $A = 36\text{ cm}^2$
2. $P = 32\text{ units}$, 70 sq. units
3. $V = 1649.3\text{ ft}^3$
4. $S.A. = 816.8\text{ ft}^2$, $V = 1649.3\text{ ft}^3$

Posttest Answers:

1. $P = 22\text{ m}$, $A = 26\text{ m}^2$
2. $C = 31.4\text{ m}$, 78.5 m^2
3. $V = 2155.1\text{ in}^3$
4. $S.A. = 148\text{ cm}^2$, $V = 120\text{ cm}^3$