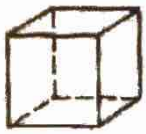
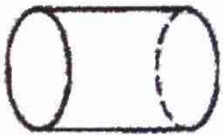
Three-Dimensional Objects

Name_____ Date_____

You can describe a three-dimensional (3-D) object by its faces, edges, and vertices. Identify the name of the object and the number of edges, faces, and vertices.

Object	Name	Faces	Edges	Vertices
	Cube	6	12	8
	Rectangular Prism	6	12	8
	Triangular Prism	5	9	6
	Cylinder	2	0	0

Vocabulary Check Unscramble the letter for each puzzle to determine the term.

1. USFAREC ERAA Surface Area The sum of the areas of the faces of an object.
2. MLOVEU Volume The number of units that can fit inside a 3-D object.
3. ECNIYDRL Cylinder A 3-D object with two parallel circular bases.
4. ETN Net A flat diagram that you can fold to make a 3-D object.
5. EUCAANRGTR MRISP Rectangular Prism A 3-D object with two parallel rectangular bases.
6. IRAGNRUALT SIMPR Triangular Prism A 3-D object with two parallel triangular bases.

Infer why it is important to learn how to calculate the surface area and volume of a 3-D object.

You can use it when filling objects and also when painting things to be sure you have enough.

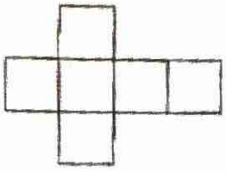
Surface Area of a Cube

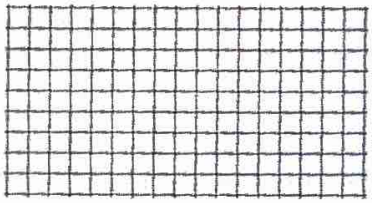
Round all answers to the 100th

Name_____ Date_____

This is one of the 11 different patterns for the net of a cube. Draw another net that could make a cube.

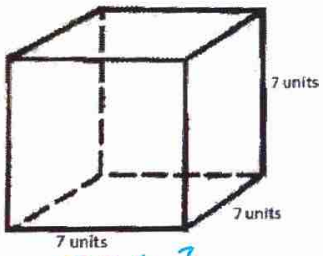
A net can be folded to make a 3-D shape. The outside of the shape is called the shell. The internal lines are called the skeleton.



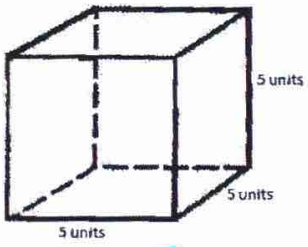


1. **How many faces make up a cube?** 6
2. **What type of polygon is each of the faces?** Square
3. **What is the formula for finding the area of one face of a cube?** $A = s^2$

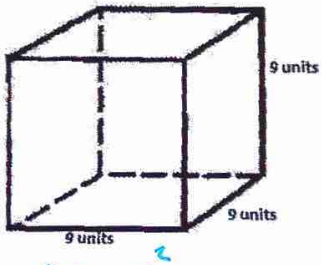
Find the surface area of the following cubes.



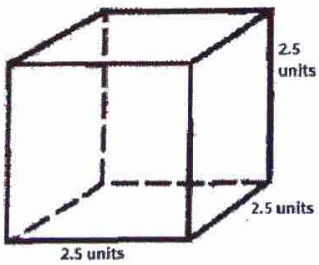
4. $294 u^2$



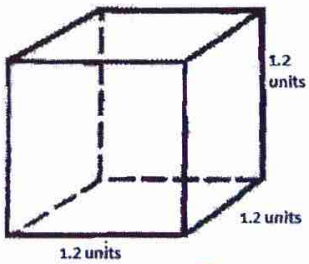
5. $150 u^2$



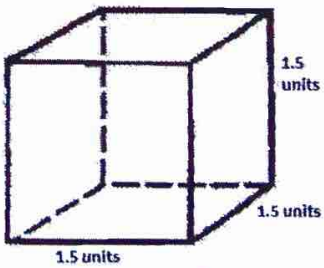
6. $486 u^2$



7. $37.5 u^2$



8. $8.64 u^2$



9. $13.5 u^2$

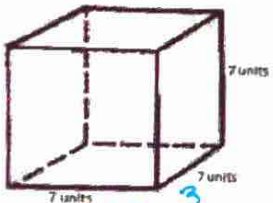
Volume of a Cube

Round all answers to the 1000th

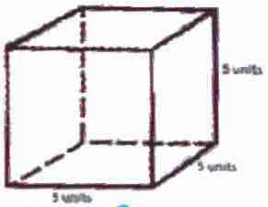
Name_____ Date_____

The amount of space occupied by an object is its volume.
Measures of volume are expressed in cubic units.
A special relationship exist between the cubic centimeter and milliliter. 1 cm^3 = 1 mL (capacity for liquid)
The formula for volume of a cube: $V = s^3$

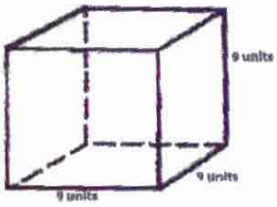
Find the volume of each cube.



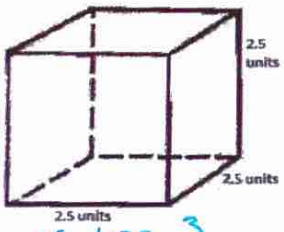
1. $343 u^3$



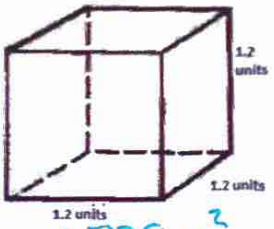
2. $125 u^3$



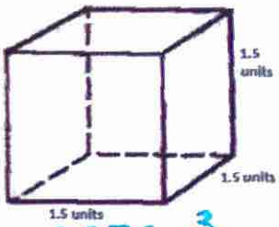
3. $729 u^3$



4. $15.625 u^3$



5. $1.728 u^3$



6. $3.375 u^3$

Problems Challenge

7. A cube has a volume of 64 cubic units. What is its surface area? 96 units^2	9. A cube has side length 10 units. What is the volume? 1000 u^3
8. A cubic container has a volume of 512 cubic centimeters. How much water can it hold? 512 mL	10. Name two objects you use frequently that are cube shaped.

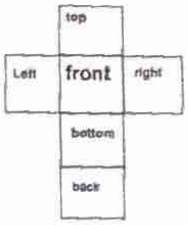
Surface Area of a Rectangular Prism

Round all answers to the 100th

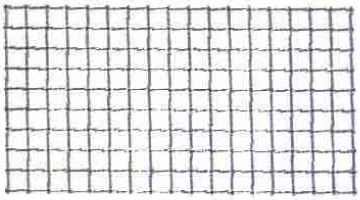
Name_____ Date_____

This is the net for a rectangular prism.

A net can be folded to make a 3-D shape. The outside of the shape is called the shell. The internal lines are called the skeleton.

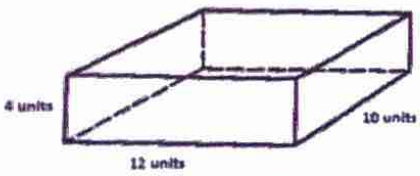


Draw the prism here. Label the faces.

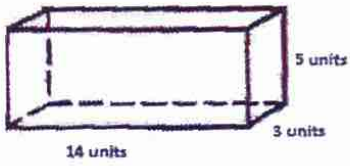


1. How many faces make up a rectangular prism? 6
2. What type of polygon is each pair of faces? Rectangle
3. What is the formula for finding the area of one face of a prism? $A = lw$
4. Why would we multiply the answer to question 3 by 2? 3 sets of congruent rectangles

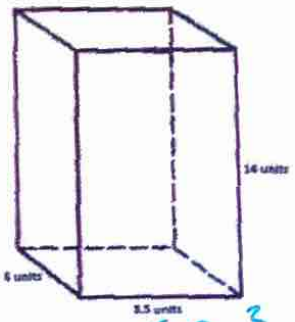
Find the Surface Area of each Rectangular Prism.



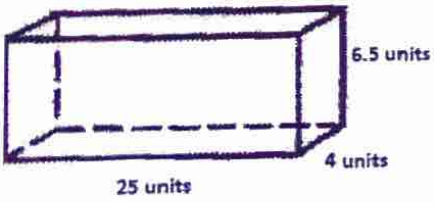
1. $416 u^2$



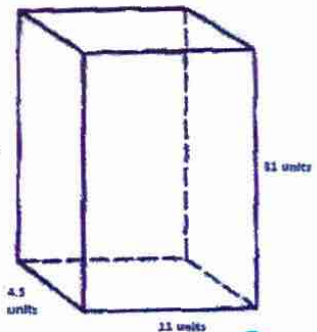
2. $254 u^2$



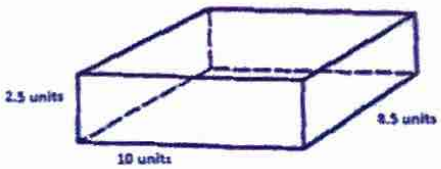
3. $508 u^2$



4. $577 u^2$



5. $1060 u^2$



6. $2625 u^2$

Volume of a Rectangular Prism

Round all answers to the 100th

Name_____ Date_____

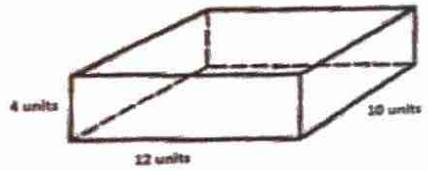
The amount of space occupied by an object is its volume.
Measures of volume are expressed in cubic units.
A special relationship exist between the cubic centimeter and milliliter. 1 cm^3 = 1 mL (capacity for liquid)
The formula for volume of a rectangular prism V = lwh

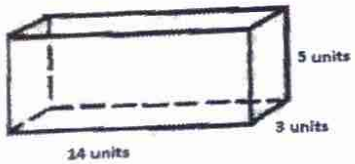
Vocabulary Check Choose the letter representing the term that matches the statement.

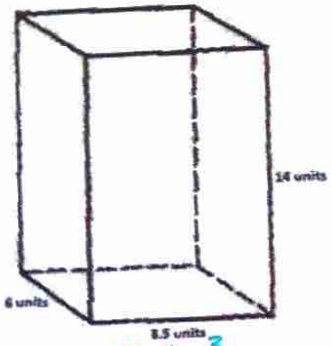
1. b The amount of space an object occupies.
2. d A particular view of an object
3. a The distance between the 2 bases of a prism
4. c The face that is perpendicular to the height of the prism

a. height
b. volume
c. base
d. orientation

Find the Volume of each Rectangular Prism.







1. 480 u^3

2. 210 u^3

3. 714 u^3

Challenge

Complete the Chart

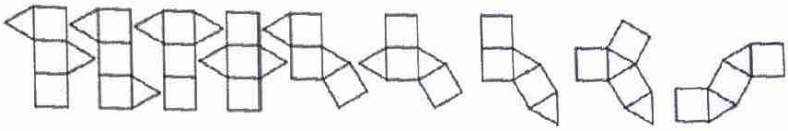
Length	Width	Height	Volume cm^3	Capacity mL
5	4	8	160	160
6.5	3.2	5.1	106.08	106.08
4.9	1.8	3	26.5	26.5
6.9	8.5	10	586.5	586.5
5.6	4.9	3	82.32	82.32
10.5	7	6.1	448.35	448.35
7.5	3	8	180	180
23.1	4	6	554.4	554.4

Surface Area of Triangular Prisms

Round all answers to the 100th

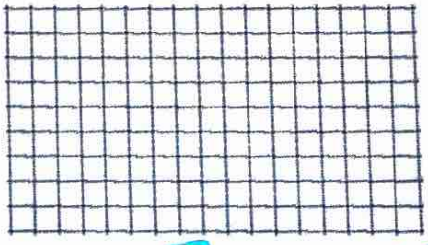
Name_____ Date_____

A triangular prism has 9 distinct nets.



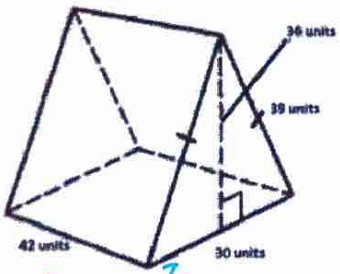
Draw one of the prisms here. Circle the net you chose. Label the base.

A net can be folded to make a 3-D shape. The outside of the shape is called the shell. The internal lines are called the skeleton.

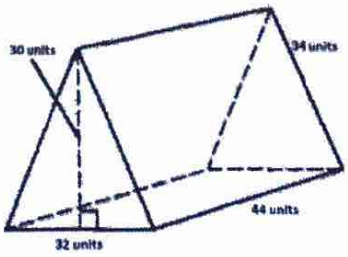


1. What type of polygons make up the triangular prism? Triangles & Rectangles
2. Name the polygon that is the base? What is the formula to find its area? Triangles $A = \frac{1}{2}bh$

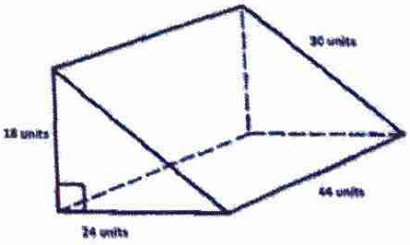
Calculate the Surface Area of the Triangular Prisms



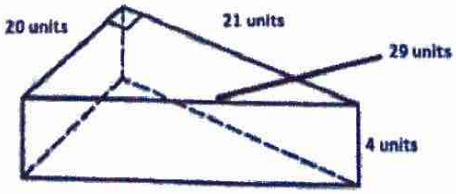
1. $5616\ u^2$



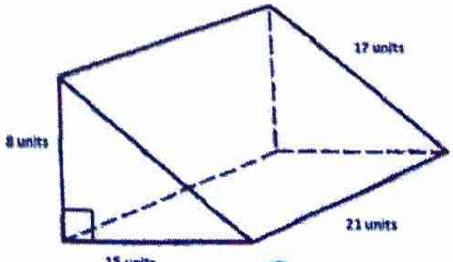
2. $5360\ u^2$



3. $3600\ u^2$



4. $700\ u^2$



5. $960\ u^2$

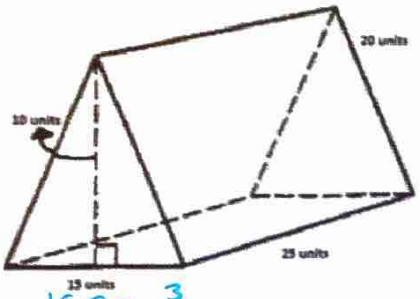
Volume of Triangular Prisms

Round all answers to the 100th

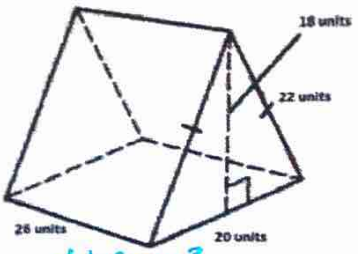
Name_____ Date_____

The amount of apce occupied by an object is its volume.
Measures of volume are expressed in cubic units.
The formula for volume of a triangular prism $V = Bh$ where B is area of the base (triangle is base)

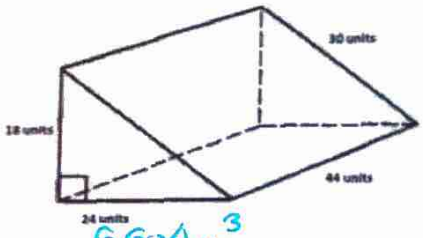
Calculate the Volume of the Triangular Prisms



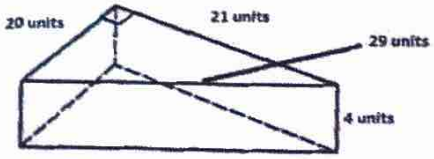
1. 1875 u^3



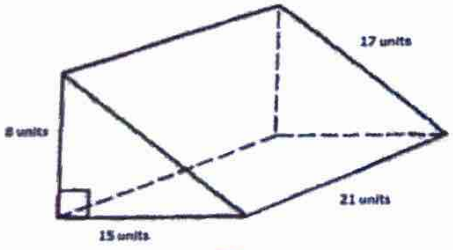
2. 4680 u^3



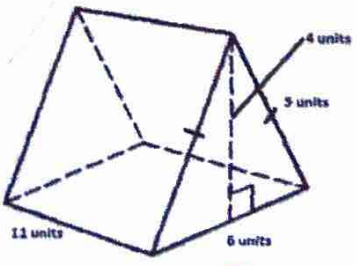
3. 9504 u^3



4. 840 u^3



5. 1260 u^3



6. 132 u^3

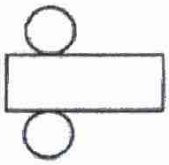
Surface Area of a Cylinder

Round all answers to the 100th

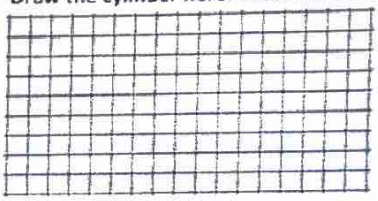
Name_____ Date_____

This is the net for a cylinder.

A net can be folded to make a 3-D shape. The outside of the shape is called the shell. The internal lines are called the skeleton.



Draw the cylinder here. Label the faces.

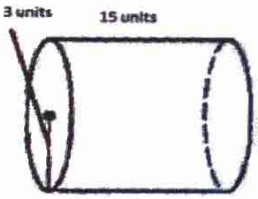


To find the surface area of a cylinder, use the formula: $SA = 2\pi rh + 2\pi r^2$

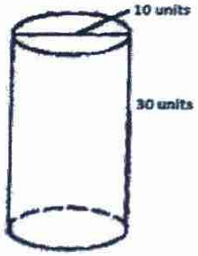
Use the Order of Operations: Exponents first; multiplication; and then addition.

Recall diameter is distance across a circle, radius is distance from center to inside edge of the circle.

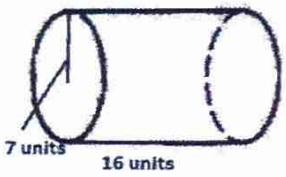
Find the Surface Area of the Cylinders. Use 3.14 for π.



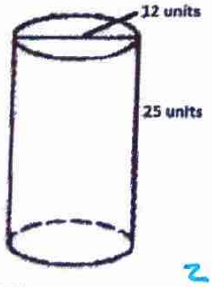
1. 339.12 u^2



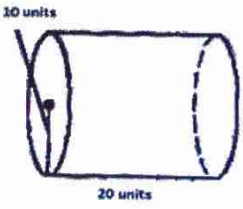
2. 1099 u^2



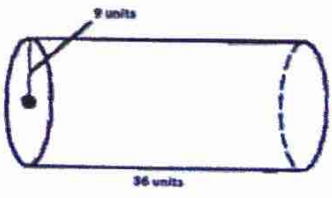
3. 1011.08 u^2



4. 1168.08 u^2



5. 1884 u^2



6. 2543.4 u^2

Volume of a Cylinder

Round all answers to the 100th

Name_____ Date_____

The amount of space occupied by an object is its volume.
Measures of volume are expressed in cubic units.

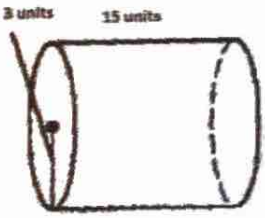
The formula for volume of a Cylinder $V = \pi r^2 h$

Vocabulary Check Choose the letter representing the term that matches the statement.

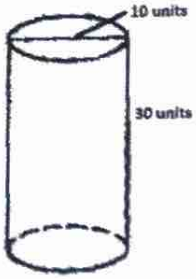
1. C The shape for the base of a cylinder.
2. A $V = lwh$
3. D $V = s^3$
4. B $A = \frac{bh}{2}$

a. rectangular prism
b. triangle
c. circle
d. cube

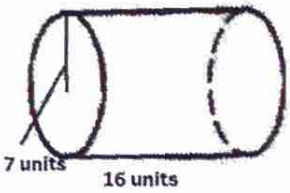
Find the Volume of the Cylinders. Use 3.14 for π.



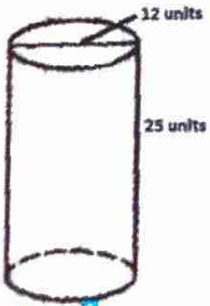
1. $423.9\ u^3$



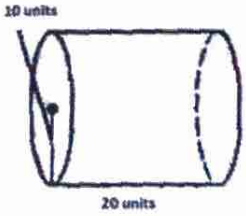
2. $2355\ u^3$



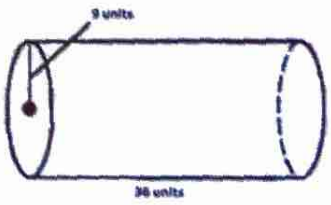
3. $2461.76\ u^3$



4. $2826\ u^3$



5. $6280\ u^3$



6. $9156.24\ u^3$

Estimating

Name: Solutions

Date: _____ Class Period: _____

$\sqrt{\ }$ Square Roots

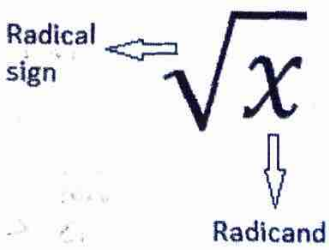
A Perfect Square is a number that is the product of 2 of the same whole numbs

$1^2 =$ 1	$2^2 =$ 4	$3^2 =$ 9	$4^2 =$ 16	$5^2 =$ 25	$6^2 =$ 36	$7^2 =$ 49	$8^2 =$ 64
$9^2 =$ 81	$10^2 =$ 100	$11^2 =$ 121	$12^2 =$ 144	$13^2 =$ 169	$14^2 =$ 196	$15^2 =$ 225	$16^2 =$ 256
$17^2 =$ 289	$18^2 =$ 324	$19^2 =$ 361	$20^2 =$ 400	$21^2 =$ 441	$22^2 =$ 484	$23^2 =$ 529	$24^2 =$ 576

A Square Root is the inverse operation of a Square

$\sqrt{196} =$ 14	$\sqrt{81} =$ 9	$\sqrt{141} =$ $\sqrt{121} < \sqrt{141} < \sqrt{144}$ $11 < \sqrt{141} < 12$ ≈ 13	$\sqrt{256} =$ 16
$\sqrt{900}$ 30	$\sqrt{6400}$ 80	$\sqrt{1600}$ 40	$\sqrt{2500}$ 50

Elements of a square root



Name: _____

Date: _____ Class Period: _____

The steps to estimate a square root of a non-perfect square are:

1) Set up an inequality
2) Fill in 1 perfect square that is greater than your number } The closest ones.
3) Fill in 1 perfect square that is less than your number.
4) Simplify the square roots of your perfect squares
5) Estimate your square root ~~as the~~ by choosing the perfect square your number is closest to.

Example:

Estimate $\sqrt{71}$

64 < 71 < 81	Check:
71 is closer to 64	use a calculator
$\sqrt{64} < \sqrt{71} < \sqrt{81}$	$\sqrt{71} = 8.426$ ✓
$8 < \sqrt{71} < 9$	
$\sqrt{71} \cong 8$	

Practice:

1) 36 < 45 < 49 Check: 6.7

45 is closer to 49

$\sqrt{36} < \sqrt{45} < \sqrt{49}$

$6 < \sqrt{45} < 7$

$\sqrt{45} \cong 7$

2) 16 < 17 < 25 Check: 4.1

17 is closer to 16

$\sqrt{16} < \sqrt{17} < \sqrt{25}$

$4 < \sqrt{17} < 5$

$\sqrt{17} \cong 4$

3) 121 < 123 < 144 Check: 11.1

123 is closer to 123

$\sqrt{121} < \sqrt{123} < \sqrt{144}$

$11 < \sqrt{123} < 12$

$\sqrt{123} \cong 11$

3) 169 < 190 < 196 Check: 13.8

190 is closer to 196

$\sqrt{161} < \sqrt{190} < \sqrt{196}$

$13 < \sqrt{190} < 14$

$\sqrt{190} \cong 14$

Name: _____

Date: _____ Class Period: _____

Find each of the following square roots. Round to the nearest tenth. Make sure to check your estimates.

1) 64 < 66 < 81 Check: 8.1

66 is closer to 64

$\sqrt{64} < \sqrt{66} < \sqrt{81}$

$8 < \sqrt{66} < 9$

$\sqrt{66} \approx 8$

2) 64 < 70 < 81 Check: 8.4

70 is closer to 64

$\sqrt{64} < \sqrt{70} < \sqrt{81}$

$8 < \sqrt{70} < 9$

$\sqrt{70} \approx 8$

3) $\sqrt{5} \approx 2$ Check: 2.1

$\sqrt{4} < \sqrt{5} < \sqrt{9}$

$2 < \sqrt{5} < 3$

4) $\sqrt{8} \approx 3$ Check: 2.8

$\sqrt{4} < \sqrt{8} < \sqrt{9}$

$2 < \sqrt{8} < 3$

5) $\sqrt{2} \approx 1$ Check: 1.4

$\sqrt{1} < \sqrt{2} < \sqrt{4}$

$1 < \sqrt{2} < 2$

6) $\sqrt{13} \approx 4$ Check: 3.6

$\sqrt{9} < \sqrt{13} < \sqrt{16}$

$3 < \sqrt{13} < 4$

7) $\sqrt{15} \approx 4$ Check: 3.9

$\sqrt{9} < \sqrt{15} < \sqrt{16}$

$3 < \sqrt{15} < 4$

8) $\sqrt{19} \approx 4$ Check: 4.4

$\sqrt{16} < \sqrt{19} < \sqrt{25}$

$4 < \sqrt{19} < 5$

9) $\sqrt{22} \approx 5$ Check: 4.7

$\sqrt{16} < \sqrt{22} < \sqrt{25}$

$4 < \sqrt{22} < 5$

10) $\sqrt{27} \approx 5$ Check: 5.2

$\sqrt{25} < \sqrt{27} < \sqrt{36}$

$5 < \sqrt{27} < 6$

11) $\sqrt{29} \approx 5$ Check: 5.4

$\sqrt{25} < \sqrt{29} < \sqrt{36}$

$5 < \sqrt{29} < 6$

12) $\sqrt{35} \approx 6$ Check: 5.9

$\sqrt{25} < \sqrt{35} < \sqrt{36}$

$5 < \sqrt{35} < 6$

Name: _____

Date: _____ Class Period: _____

Find each of the following square roots. Round to the nearest tenth. Make sure to check your estimates.

13) 36 < 37 < 49 Check: 6.08

37 is closer to 36

$\sqrt{36} < \sqrt{37} < \sqrt{49}$

$6 < \sqrt{37} < 7$

$\sqrt{37} \cong 6$

14) 49 < 53 < 64 Check: 7.28

53 is closer to 49

$\sqrt{49} < \sqrt{53} < \sqrt{64}$

$7 < \sqrt{53} < 8$

$\sqrt{53} \cong 7$

15) $\sqrt{58} \cong 8$ Check: 7.6

$\sqrt{49} < \sqrt{58} < \sqrt{64}$

$7 < \sqrt{58} < 64$

16) $\sqrt{63} \cong 8$ Check: 7.9

$\sqrt{49} < \sqrt{63} < \sqrt{64}$

$7 < \sqrt{63} < 8$

17) $\sqrt{67} \cong 8$ Check: 8.18

$\sqrt{64} < \sqrt{67} < \sqrt{81}$

$8 < \sqrt{67} < 9$

18) $\sqrt{72} \cong 8$ Check: 8.48

$\sqrt{64} < \sqrt{72} < \sqrt{81}$

$8 < \sqrt{72} < 9$

19) $\sqrt{79} \cong 9$ Check: 8.89

$\sqrt{64} < \sqrt{79} < \sqrt{81}$

$8 < \sqrt{79} < 9$

20) $\sqrt{85} \cong 9$ Check: 9.2

$\sqrt{81} < \sqrt{85} < \sqrt{100}$

$9 < \sqrt{85} < 10$

21) $\sqrt{92} \cong 10$ Check: 9.59

$\sqrt{81} < \sqrt{92} < \sqrt{100}$

$9 < \sqrt{92} < 10$

22) $\sqrt{99} \cong 10$ Check: 9.9

$\sqrt{81} < \sqrt{99} < \sqrt{100}$

$9 < \sqrt{99} < 10$

23) $\sqrt{105} \cong 10$ Check: 10.2

$\sqrt{100} < \sqrt{105} < \sqrt{121}$

$10 < \sqrt{105} < 11$

24) $\sqrt{113} \cong 11$ Check: 10.6

$\sqrt{100} < \sqrt{113} < \sqrt{121}$

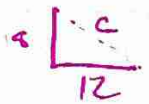
$10 < \sqrt{113} < 11$

Name _____ Date _____ Period _____

Using the Pythagorean Theorem in Word Problems – WS #2

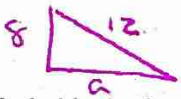
Solve by drawing a picture, identifying a, b, and c, and applying the Pythagorean Theorem. Don't forget to give your answer with units!

1. Two sides of a right triangle are 8 and 12 in.
   a. Find the missing side if these are the lengths of the legs.



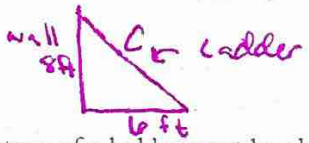
$a^2+b^2=c^2$
$a^2+12^2=c^2$
$64+144=c^2$
$208=c^2$
$\sqrt{208}=c$
$14.4\approx c$

   b. Find the missing side if these are the lengths of a leg and hypotenuse.



$a^2+b^2=c^2$
$a^2+8^2=12^2$
$a^2+64=144$
$-64 \quad -64$
$a^2=80$
$a=\sqrt{80}$
$a\approx 8.9$ inches

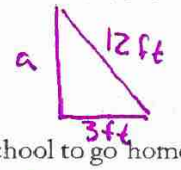
2. The foot of a ladder is placed 6 feet from a wall. If the top of the ladder rests 8 feet up on the wall, how long is the ladder?



$a^2+b^2=c^2$
$8^2+6^2=c^2$
$64+36=c^2$
$100=c^2$
$\sqrt{100}=c$

The ladder is about 8.9 ft long.

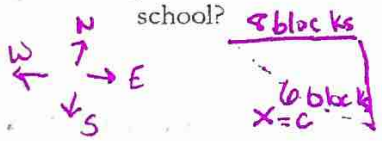
3. The bottom of a ladder must be placed 3 ft. from a wall. The ladder is 12 feet long. How far above the ground does the ladder touch the wall?



$a^2+b^2=c^2$
$a^2+3^2=12^2$
$a^2+9=144$
$a^2=135$
$a=\sqrt{135}$
$a\approx 11.6$

The ladder reaches about 11.6 ft up the wall

4. John leaves school to go home. He walks 6 blocks North and then 8 blocks west. How far is John from the school?



$a^2+b^2=c^2$
$8^2+6^2=c^2$
$64+36=c^2$
$100=c^2$
$\sqrt{100}=c$
$10=c$

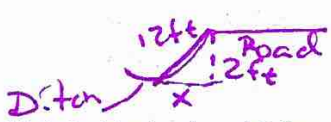
John is 10 blocks from School

5. Scott wants to swim across a river that is 400 meters wide. He begins swimming perpendicular to the shore he started from but ends up 100 meters down river from where he started because of the current. How far did he actually swim from his starting point?

$a^2+b^2=c^2$
$100^2+400^2=x^2$
$10000+160000=x^2$
$170000=x^2$
$\sqrt{170000}=x$
$412.3=x$

He swam about 412.3 m

6. A ramp is placed from a ditch to a main road 2 ft. above the ditch. If the length of the ramp is 12 ft., how far away is the bottom of the ramp from the road?

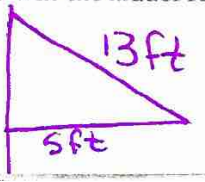


$a^2+b^2=c^2$
$a^2+2^2=12^2$
$a^2+4=144$
$-4 \quad -4$
$a^2=140$
$a=\sqrt{140}$
$a\approx 11.8$ ft

The ramp is about 11.8 feet from the road

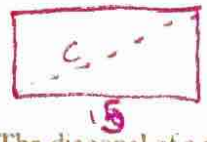
7. A 13 ft. ladder is placed 5 feet away from a wall. The distance from the ground straight up to the top of the wall is 13 ft. Will the ladder reach the top of the wall?

Can this be 13 ft?



No Fts not possible. The hypotenuse (ladder) must be the longest side so it will not reach the top of the wall, if the base is 5 ft away

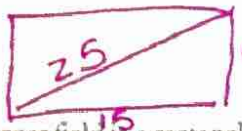
8. What is the length of the diagonal of a 10 cm by 15 cm rectangle?



$a^2+b^2=c^2$
$10^2+15^2=c^2$
$100+225=c^2$
$325=c^2$
$\sqrt{325}=c$
$18.02\approx c$

The length of the diagonal is about 18 cm

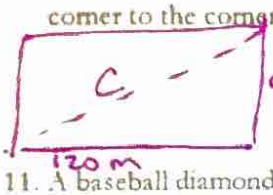
9. The diagonal of a rectangle is 25 in. The width is 15 in. What is the length?



$a^2+b^2=c^2$
$a^2+15^2=25^2$
$a^2+225=625$
$-225\quad -225$
$a^2=400$
$a=\sqrt{400}$
$a=40$

The length is 40 in

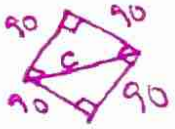
10. A soccer field is a rectangle 90 meters wide and 120 meters long. The coach asks players to run from one corner to the corner diagonally across. What is this distance?



$a^2+b^2=c^2$
$90^2+120^2=c^2$
$8100+14400=c^2$
$22500=c^2$
$\sqrt{22500}=c$
$150=c$

They run 150m

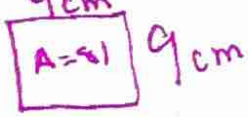
11. A baseball diamond is a square with sides of 90 feet. What is the shortest distance, to the nearest tenth of a foot, between first base and third base?



$a^2+b^2=c^2$
$90^2+90^2=c^2$
$8100+8100=c^2$
$16200=c^2$
$\sqrt{16200}=c$
$127.27=c$

The distance between 1st & 3rd bases is about 127.3 ft

12. The area of a square is 81 square centimeters. First, find the length of a side. Then, find the length of the diagonal.



Each side is 9cm
$a^2+b^2=c^2$
$9^2+9^2=c^2$
$81+81=c^2$
$162=c^2$
$\sqrt{162}=c$
$12.72=c$

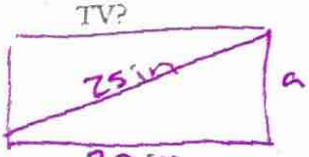
The length of the diagonal is about 12.7cm

13. In a computer catalog, a computer monitor is listed as being 19 inches. This distance is the diagonal distance across the screen. If the screen measures 10 inches in height, what is the actual width of the screen to the nearest inch?

$a^2+b^2=c^2$
$a^2+10^2=19^2$
$a^2+100=361$
$-100\quad -100$
$a^2=261$
$a=\sqrt{261}$
$a=16.15$

The width is about 16.2 in

14. Donna's TV screen is 20 inches long. If the diagonal measures 25 inches, how long is the width of Donna's TV?



$a^2+b^2=c^2$
$a^2+20^2=c^2$
$a^2+400=625$
$-400\quad -400$
$a^2=225$
$a=\sqrt{225}$
$a=15$

The width of the TV is 15 in

15. An isosceles triangle has congruent sides of 20 cm. The base is 10 cm. Find the height of the triangle.

$a^2+b^2=c^2$
$a^2+5^2=20^2$
$a^2+25=400$
$-25\quad -25$
$a^2=375$
$a=\sqrt{375}$
$a\approx 19.4$

The height is about 19.4 cm

Solutions

Date: _____ ___/30 **Name:** _____

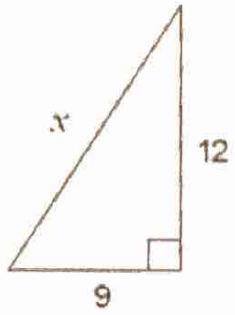
Pythagorean Theorem Assignment

A) Calculate the measure of x in each.

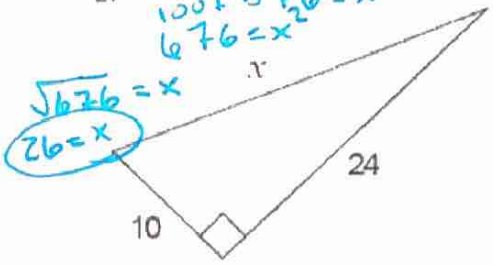
Where necessary, round you answer correct to one decimal place.

Complete on a separate piece of paper.

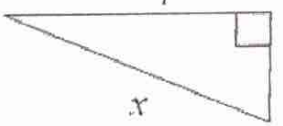
1. $9^2+12^2=x^2$, $81+144=x^2$, $225=x^2$, $\sqrt{225}=x$, $15=x$



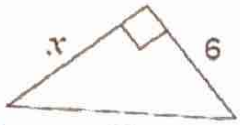
2. $10^2+24^2=x^2$, $100+676=x^2$, $676=x^2$, $\sqrt{676}=x$, $26=x$



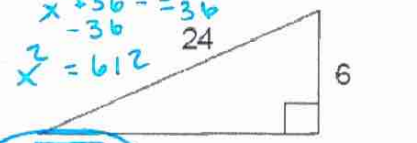
3. $7^2+3^2=x^2$, $49+9=x^2$, $58=x^2$, $x=\sqrt{58}$, $x\approx 7.6$ or about 8



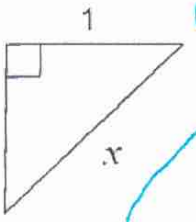
4. $x^2+6^2=10^2$, $x^2+36=100$, $x^2=64$, $x=\sqrt{64}$, $x=8$



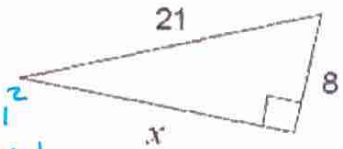
5. $x^2+6^2=24^2$, $x^2+36=576$, $-36\ \ -36$, $x^2=612$, $x=\sqrt{612}$, $x\approx 24.7$ or about 25



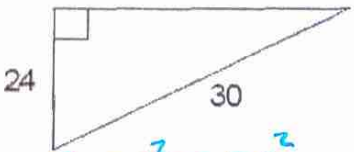
6. $1^2+1^2=x^2$, $1+1=x^2$, $2=x^2$, $\sqrt{2}=x$, $1.4=x$, x is about 1



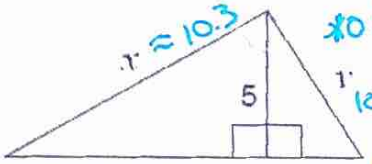
7. $x^2+8^2=21^2$, $x^2+64=441$, $-64\ \ -64$, $x^2=377$, $x=\sqrt{377}$, $x\approx 19.4$, $x\approx 19$



8. $x^2+24^2=30^2$, $x^2+576=900$, $-576\ \ -576$, $x^2=324$, $x=\sqrt{324}$, $x=18$



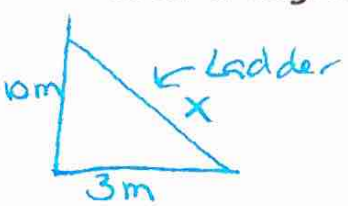
9. $5^2+9^2=x^2$, $25+81=x^2$, $106=x^2$, $\sqrt{106}=x$, $x\approx 10.3$



$10.3^2+y^2=12^2$, $106.09+y^2=144$, $-106.09\ \ -106.09$, $y^2=37.91$, $y=\sqrt{37.91}$, $y\approx 6.2$

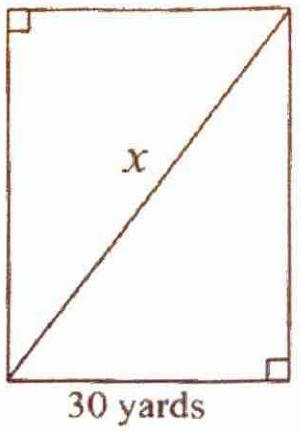
B) A ladder is leaning against the side of a 10m house. If the base of the ladder is 3m away from the house, how tall is the ladder?

Draw a diagram and show all work.



$10^2+3^2=x^2$, $100+9=x^2$, $109=x^2$, $\sqrt{109}=x$, $x\approx 10.4$ m

C) What is the length of the diagonal?



$30^2 + 40^2 = x^2$

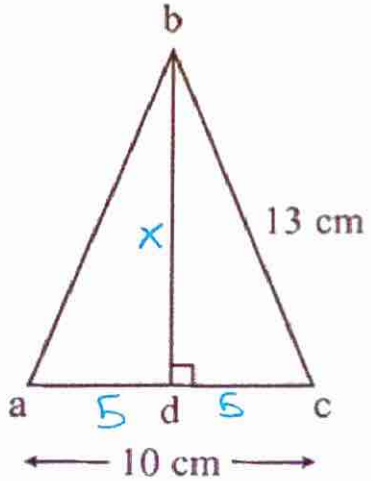
$900 + 1600 = x^2$

$2500 = x^2$

$\sqrt{2500} = x$

25 yards = x

D) What is the length of bd?



$5^2 + x^2 = 13^2$

$25 + x^2 = 169$

$-25 \quad -25$

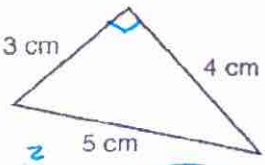
$x^2 = 144$

$x = \sqrt{144}$

x = 12 cm

E) Use the Pythagorean Theorem to find out if these are right triangles.
Justify your answers.

a)



$3^2 + 4^2 \stackrel{?}{=} 5^2$

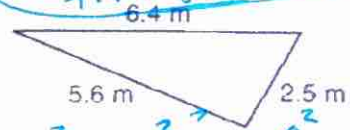
$9 + 16 = 25$

$25 = 25$

yes a right triangle

b)

Not a right triangle



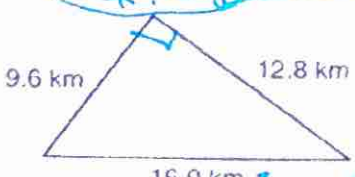
$2.5^2 + 5.6^2 \stackrel{?}{=} 6.4^2$

$6.25 + 31.36 \stackrel{?}{=} 40.96$

$37.61 \neq 40.96$

c)

yes, this is a right triangle



$9.6^2 + 12.8^2 \stackrel{?}{=} 16.0^2$

$92.16 + 163.84 = 256$

$256 = 256$ ✓