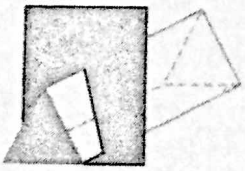
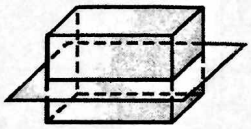
Key

Station # 1 -Name the shape made by each cross-sections.

1. 

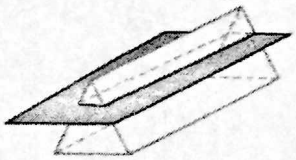
Parallel to the base!

Triangle

2. 

Perpendicular to the base!

Rectangle

3. 

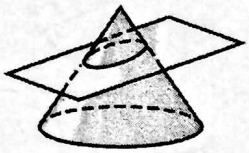
Perpendicular to the base!

Rectangle

4. 

Perpendicular to the base!

Rectangle

5. 

Parallel to the base!

Circle

Station # 1 – Cross-sections of solids

Use the box of Geometric Solids, find both the vertical cross-section (perpendicular to the base) and the horizontal cross-section (parallel to the base) for each of the listed solids. Record the chart and your answers in your composition notebook.

Solid Name **Cross-Sections**

Solids Name	Perpendicular to the base	Parallel to the base
1. Triangular Prism	Rectangle	Triangle
2. Cube	Square	Square
3. Square ~~Pyramid~~ Prism	Rectangle	Square
4. Hexagonal Prism	Rectangle	Hexagon
5. Triangular Pyramid	Triangle	Triangle
6. Square Pyramid	Triangle	Square
7. Cone	Triangle	~~Cone~~ Circle
8. Cylinder	Rectangle	Circle

* Challenge Problems

What's My Solid?

	Cube	Pyramid (Identify which kind)	Prism (Identify which kind)	Cylinder	Cone	Sphere
a. set of parallel cross-sections are squares that are similar but not congruent		Square				
b. set of parallel cross-sections are congruent rectangles	✓		✓	✓		
c. set of parallel cross-sections are circles that are similar but not congruent					✓	✓
d. set of parallel cross-sections are congruent circles				✓		✓
e. set of parallel cross-sections are parallelograms		Square	✓	✓		
f. one cross-section is a hexagon, one is an equilateral triangle	✓	hexagonal	hexagonal			
g. made by translating a rectangle through space			✓			
h. made b y rotating a triangle through space					✓	
i. volume can be calculated by using the area of a circle				✓	✓	
j. volume can be calculated by using the area of a rectangle		✓	✓			

Station #2 - Triangles

Can these be triangles? Identify as Isosceles, Scalene or Equilateral

1. Side=14" side=14" side=28" no TYPE OF TRIANGLE N/A
2. Side=12" side=12" side=13" yes TYPE OF TRIANGLE Isosceles
3. Side=17" side=18" side=5" yes TYPE OF TRIANGLE Scalene

Can these be triangles? Identify as Right, Acute or Obtuse

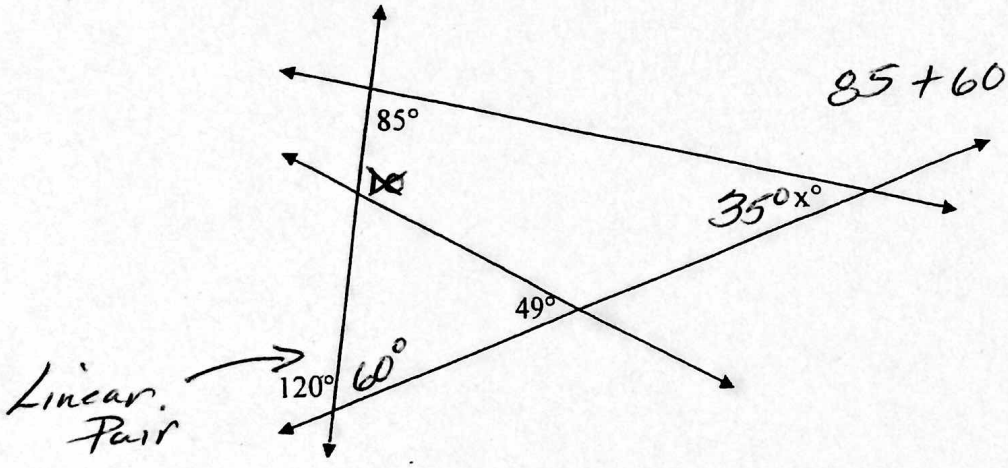
4. 70º 60º 50º yes TYPE OF TRIANGLE Acute
5. 130º 20º 30º yes TYPE OF TRIANGLE Obtuse
6. 55º 35º <90º yes TYPE OF TRIANGLE right

Find the missing angle measures

* Challenge Problems

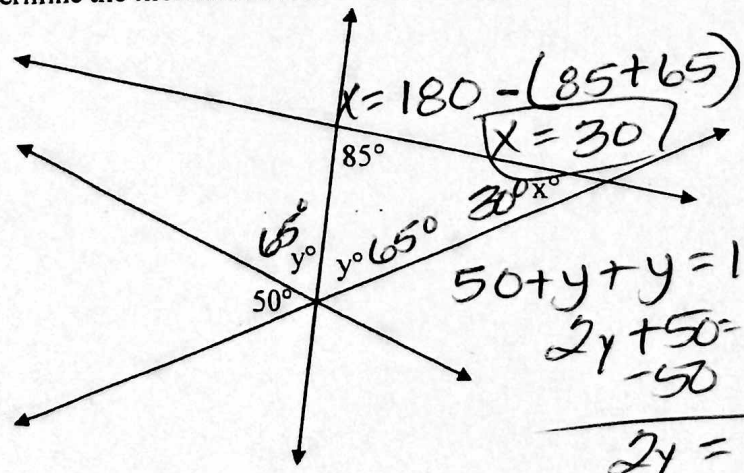
Part 3: Challenge Problems

10. Determine the measure of the unknown angle.



$85+60+x=180$

11. Determine the measures of the unknown angles.



$x=180-(85+65)$

$x=30$

$50+y+y=180$

$2y+50=180$

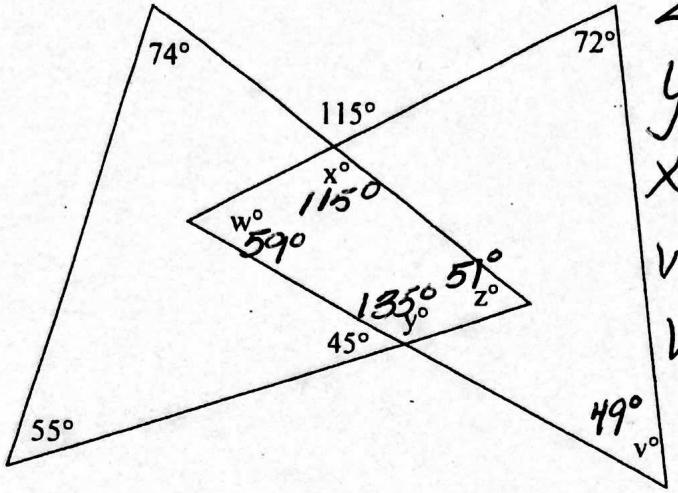
$-50 \quad -50$

$\frac{2y}{2}=\frac{130}{2}$

$y=65$

Key

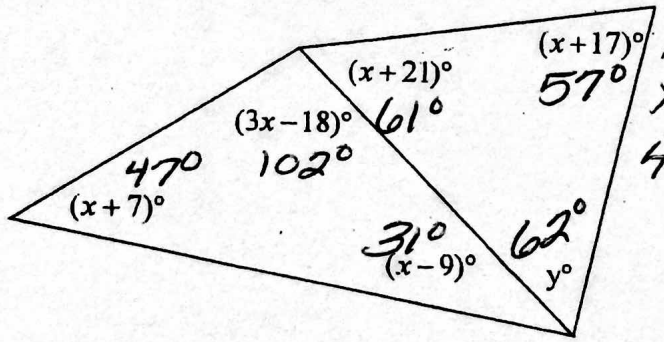
14. Determine the value of the unknowns.



$V = 49°$
$W = 59°$
$X = 115°$
$y = 135°$
$Z = 51°$

$Z = 180 - 74 - 55 = 61$
$y = 180 - 45 = 135$
$x = 115°$ (Vertical ∠)
$W = 360 - 115 - 135 - 51 = 59$
$V = 180 - 72 - 59 = 49$

15. Determine the values of the unknown variables.



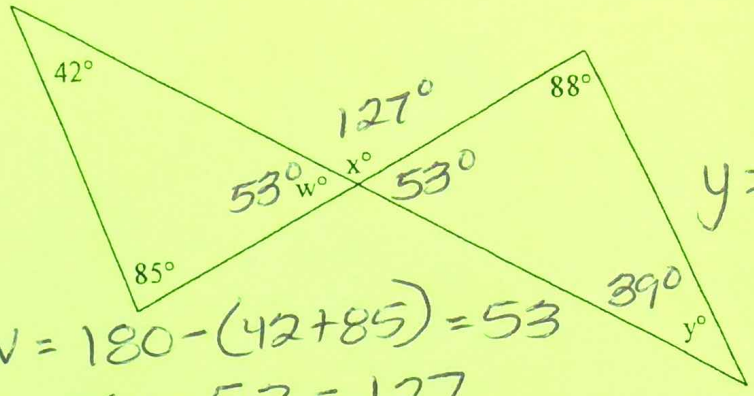
$3x - 18 + x - 9 + x + 7 = 180$
$5x - 20 = 180$
$+20 \quad +20$
$\frac{5x}{5} = \frac{200}{5}$
$\boxed{x = 40}$

$x + 21 + x + 17 + y = 180$
$x = 40$
$40 + 21 + 40 + 17 + y = 180$
$118 + y = 180$
$-118 \quad -118$
$\boxed{y = 62}$

Station # 4

1. Determine the measures of the unknown angles in the figure.

$w = 53°$
$x = 127°$
$y = 39°$



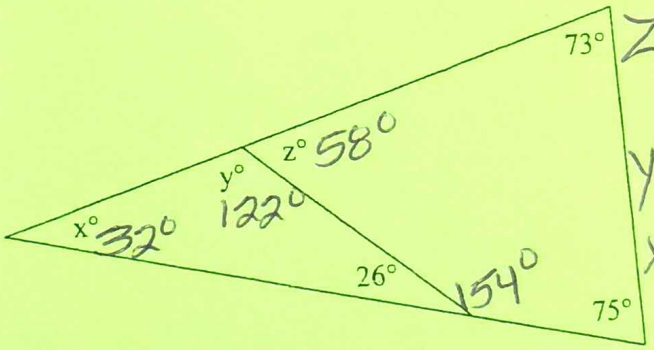
$y = 180-(88+53) = 39$

$W = 180-(42+85) = 53$

$X = 180-53 = 127$

2. Determine the measures of the unknown angles in the figure.

$x = 32°$
$y = 122°$
$z = 58°$



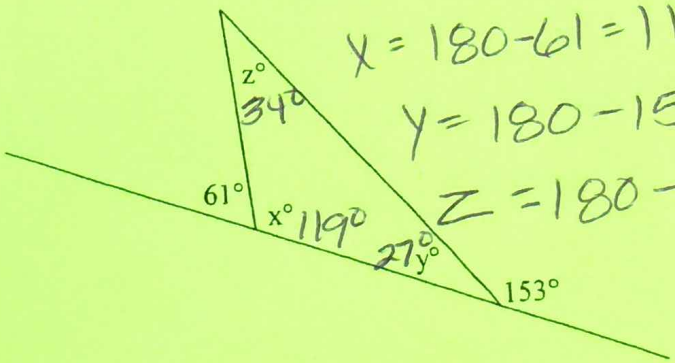
$Z = 360-(73+75+154)$
$Z = 58$

$y = 180-58 = 122$

$X = 180-(122+26)$
$X = 32$

3. Determine the measures of the unknown angles in the figure.

$X = 119°$
$Y = 27°$
$Z = 34°$



$X = 180-61 = 119$

$Y = 180-153 = 27$

$Z = 180-(119+27) = 34$

Name Station #5 Date Key

2D and 3D Area, Volume and Surface Area - Independent Practice Worksheet

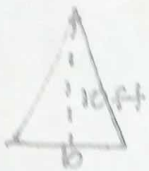
Complete all the problems. Make sure to draw pictures to help you solve the problems.

1. A triangle that is very special to you has an area of 12 square feet. The height of this figure is six feet. What is the length of the base?

$A = 12\ ft^2$ $h = 6\ ft$ $A = \frac{1}{2}bh$ $12 = \frac{1}{2}b(6)$ $b = 4\ ft$

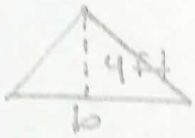
2. You find a triangle that has an area of 10 square feet. The height of the triangle is ten feet. What is the length of the base of the triangle?

$A = 10\ ft^2$ $h = 10\ ft$ $A = \frac{1}{2}bh$ $10 = \frac{1}{2}b(10)$ $b = 2\ ft$



3. You have a cooking triangle at your camp. It makes great hot dogs on a camp fire. The triangle has an area of 14 square feet. The height is four feet. What is the length of the base?

$A = 14\ ft^2$ $h = 4\ ft$ $A = \frac{1}{2}bh$ $14 = \frac{1}{2}b(4)$ $b = 7\ ft$



4. The surface area of a cube is $216\ in^2$. What is the volume of the cube?

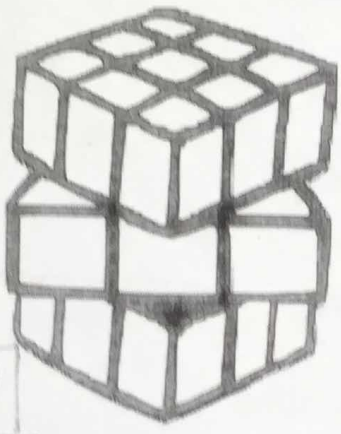
$S.A. = 216\ in^2$ $S.A. = 6s^2$ $216 = 6s^2$ $36 = s^2$ $s = 6\ in$ $V = s^3$ $V = 6^3$ $V = 216\ in^3$

5. The surface area of a cube is $96\ in^2$. What is the volume of the cube?

$S.A. = 96\ in^2$ $S.A. = 6s^2$ $96 = 6s^2$ $16 = s^2$ $s = 4\ in$ $V = s^3$ $V = 4^3$ $V = 64\ in^3$

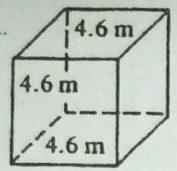
6. An oversized colorful puzzle cube has the surface area of $294\ in^2$. What is the volume of the puzzle cube?

$S.A. = 294\ in^2$ $S.A. = 6s^2$ $294 = 6s^2$ $49 = s^2$ $s = 7\ in$ $V = s^3$ $V = 7^3$ $V = 343\ in^3$

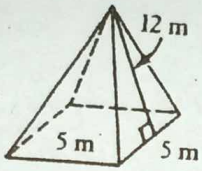


Station #5 - SA

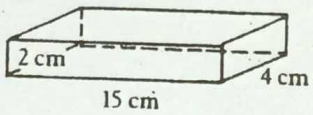
Find the surface area of the following. Show all steps.

1. 

SA = 126.96m²

2. 

SA = 145m²

3. 

SA = 196cm²

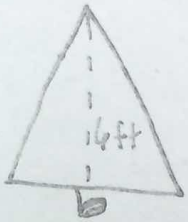
Name Station #6 Date Key

2D and 3D Area, Volume and Surface Area - Independent Practice Worksheet

Complete all the problems. Make sure to draw pictures to help you solve the problems.

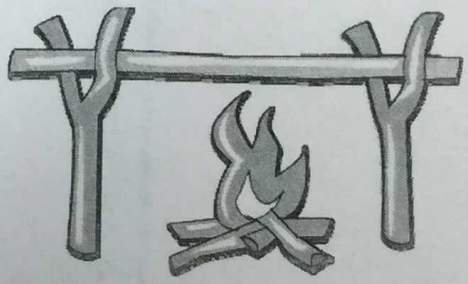
1. A triangle that is very special to you has an area of 12 square feet. The height of this figure is six feet. What is the length of the base?

$A = 12\ ft^2$ $h = 6\ ft$ $A = \frac{1}{2}bh$ $12 = \frac{1}{2}b(6)$ $\boxed{b = 4\ ft}$



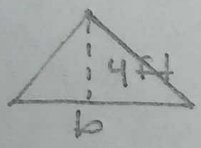
2. You find a triangle that has an area of 10 square feet. The height of the triangle is ten feet. What is the length of the base of the triangle?

$A = 10\ ft^2$ $h = 10\ ft$ $A = \frac{1}{2}bh$ $10 = \frac{1}{2}b(10)$ $\boxed{b = 2\ ft}$



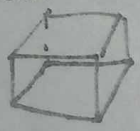
3. You have a cooking triangle at your camp. It makes great hot dogs on a camp fire. The triangle has an area of 14 square feet. The height is four feet. What is the length of the base?

$A = 14\ ft^2$ $h = 4\ ft$ $A = \frac{1}{2}bh$ $14 = \frac{1}{2}b(4)$ $\boxed{b = 7\ ft}$



4. The surface area of a cube is 216 in^2. What is the volume of the cube?

$S.A. = 216\ in^2$ $\boxed{216\ in^2}$ $S.A. = 6s^2$ $216 = 6s^2$ $36 = s^2$ $s = 6\ in$ $V = s^3$ $V = 6^3$ $\boxed{V = 216\ in^3}$

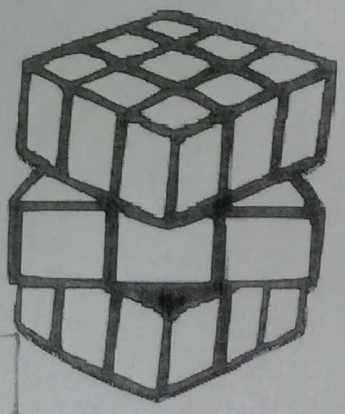


5. The surface area of a cube is 96 in^2. What is the volume of the cube?

$S.A. = 96\ in^2$ $96\ in^2$ $S.A. = 6s^2$ $96 = 6s^2$ $16 = s^2$ $s = 4\ in$ $V = s^3$ $V = 4^3$ $\boxed{V = 64\ in^3}$

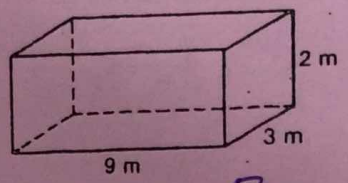
6. An oversized colorful puzzle cube has the surface area of 294 in^2. What is the volume of the puzzle cube?

$294\ in^2$ $S.A. = 294\ in^2$ $S.A = 6s^2$ $294 = 6s^2$ $49 = s^2$ $s = 7\ in$ $V = s^3$ $V = 7^3$ $\boxed{V = 343\ in^3}$

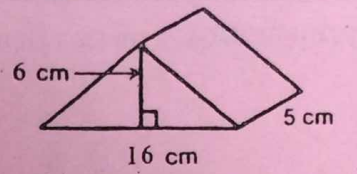


Station #6 - Volume

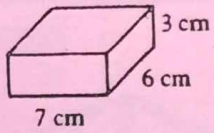
Find the volume of the following. Show all steps

4. 

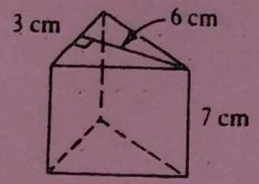
$V = 54m^3$

5. 

$V = 240cm^3$

6. 

$V = 126cm^3$

7. 

$V = 63cm^3$

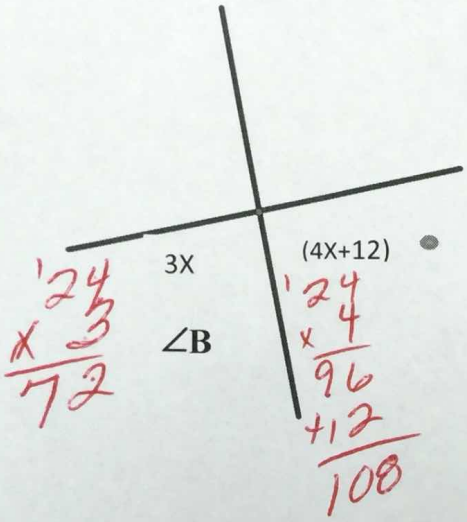
Key

Station # 7

For number 1, solve for Angle B.

1. $\angle B =$ 72°

Work:



24 × 3 = 72

24 × 4 = 96, 96 + 12 = 108

$3x + 4x + 12 = 180$

$7x + 12 = 180$

$-12 \quad -12$

0

$7x = 168$

$\frac{7x}{7} = \frac{168}{7}$

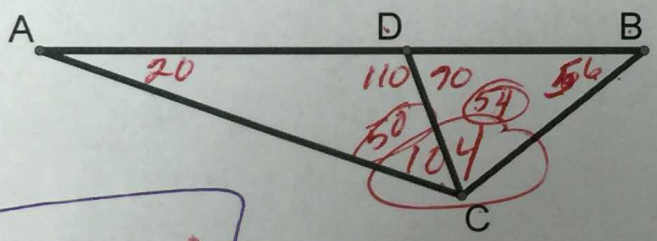
$x = 24$

2. In the triangle shown, the measure of $\angle A$ is 20 degrees, the measure of $\angle ADC$ is 110 degrees, and the measure of $\angle DBC$ is ~~66~~ 56 degrees.

What is the measure of $\angle ACB$? 104°

(HINT: Label all the angle measures as you find them.)

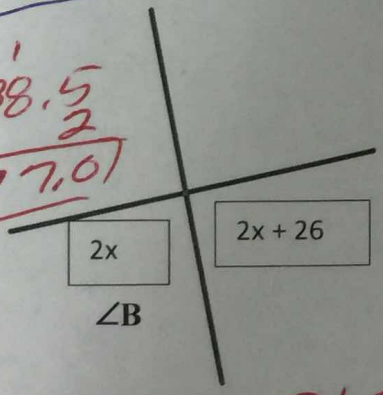
Work:



54 + 20 + 86 = 180

180 − 86 = 104

3. $\angle B =$ 77°



38.5 × 2 = 77.0

$4x + 26 = 180$

$-26 \quad -26$

0

$\frac{4x}{4} = \frac{154}{4}$

$x = 38.5$

4. $\angle C =$ 60°