

Name: \_\_\_\_\_

Block: \_\_\_\_\_

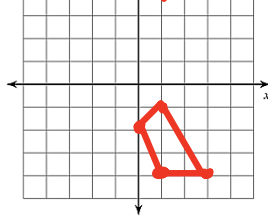
**Vocabulary:** Translations, Dilations, Reflections, Rotations, and Isometric.

1) Translate the following points by the rule:  $(x, y) \rightarrow (x+1, y-4)$

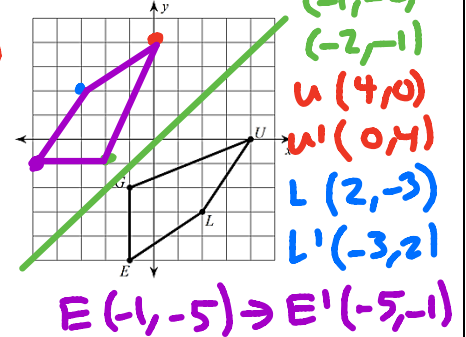
S (-5, 2)  $\rightarrow$   $S'(-4, -2)$   
 Y (-4, 5)  $\rightarrow$   $Y'(-3, 1)$   
 R (-1, 1)  $\rightarrow$   $R'(0, -3)$   
 A (-4, -2)  $\rightarrow$   $A'(-3, -6)$

2) Translation:  $(x, y) \rightarrow (x - 2, y - 6)$

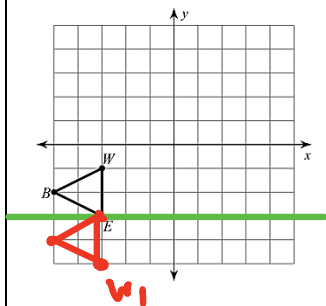
W(3, 2) C(2, 4) T(3, 5) Z(5, 2)  
 $(1, -4)$   $(0, -2)$   $(1, -1)$   $(3, -4)$



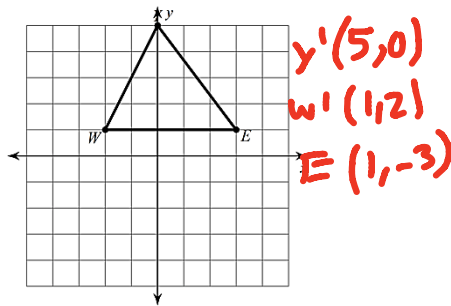
3) Reflection over  $y = x$



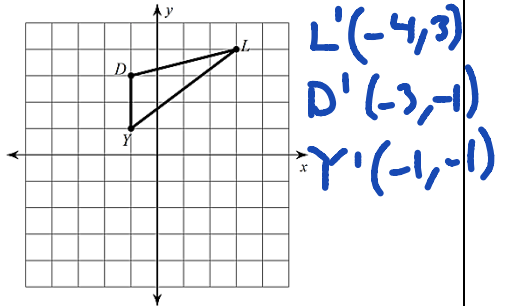
4) Reflection over  $y = -3$



5) Rotate the figure  $90^\circ$  CW



6) Rotate the figure  $90^\circ$  CCW



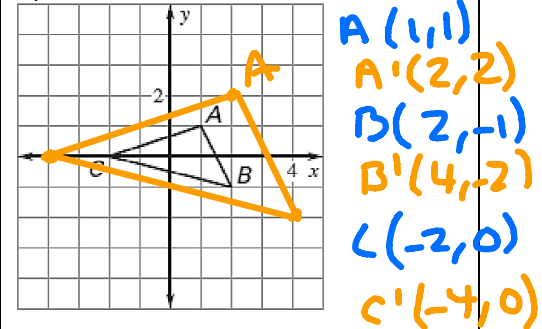
7) Find the coordinates of the new vertices of the image that has been dilated by a factor of 5.

S(-5, 2)  $\rightarrow$   $S'(-25, 10)$   
 Y(-4, 5)  $\rightarrow$   $Y'(-20, 25)$   
 R(-1, 1)  $\rightarrow$   $R'(-5, 5)$   
 A(-4, -2)  $\rightarrow$   $A'(-20, -10)$

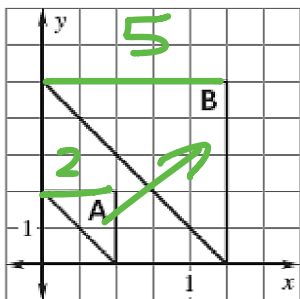
8) Find the coordinates of the new vertices of the image that has been dilated by a factor of  $1/2$ .

W(3, 2)  $\rightarrow$   $W'(1.5, 1)$   
 C(2, 4)  $\rightarrow$   $C'(1, 2)$   
 T(3, 5)  $\rightarrow$   $T'(1.5, 2.5)$   
 Z(5, 2)  $\rightarrow$   $Z'(2.5, 1)$

9) Draw a dilation with  $k = 2$



10) Determine the scale factor,  $k =$  \_\_\_\_\_



11) Given the points

M(-3, 1) S(5, 2)  
 Translate:  $(x - 3, y + 2)$   
 Reflect:  $y = x$

M'  $\rightarrow$   $(-6, 3)$   
 M''  $\rightarrow$   $(3, -6)$   
 S'  $\rightarrow$   $(2, 0)$   
 S''  $\rightarrow$   $(0, 2)$

12) Given the points

K(0, -4) P(-6, -3) R(1, 2)

Reflect: over the x-axis  
 Rotate:  $270^\circ$  CCW

K'  $\rightarrow$   $(0, 4)$  K''  $\rightarrow$   $(4, 0)$   
 P'  $\rightarrow$   $(-6, 3)$  P''  $\rightarrow$   $(3, 6)$   
 R'  $\rightarrow$   $(1, -2)$  R''  $\rightarrow$   $(-2, -1)$

$$k = \frac{5}{2} = 2.5$$

Name: \_\_\_\_\_

Block: \_\_\_\_\_

**Vocabulary:** Supplementary, complementary, vertical, same side interior, same side exterior, alternate interior, alternate exterior, corresponding, triangle, quadrilateral, and parallelogram.

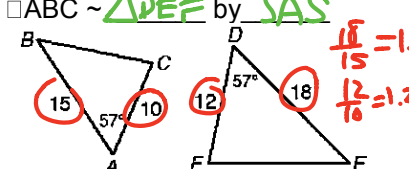
	<p>1) Name the angles listed and the special property.</p> <p><math>\angle 1</math> and <math>\angle 5</math> <u>Corresponding</u>  <math>\angle 4</math> and <math>\angle 6</math> <u>S.S. interior</u>  <math>\angle 2</math> and <math>\angle 8</math> <u>S.S. exterior</u>  <math>\angle 4</math> and <math>\angle 5</math> <u>alternate interior</u></p>	<p>2) Given <math>m \parallel n</math> and <math>m\angle 8</math>, find the measures of all the numbered angles in the figure.</p> <p><math>m\angle 1 = 112^\circ</math>   <math>m\angle 2 = 68^\circ</math>  <math>m\angle 3 = 68^\circ</math>   <math>m\angle 4 = 112^\circ</math>  <math>m\angle 5 = 112^\circ</math>   <math>m\angle 6 = 68^\circ</math>  <math>m\angle 7 = 68^\circ</math>   <math>m\angle 8 = 112^\circ</math></p>
<p>3) Solve for x.</p> <p><math>87 + 6x + 3 = 180</math>  <math>6x + 90 = 180</math>  <math>-90 \quad -90</math>  <math>6x = 90</math>  <math>\frac{6x}{6} = \frac{90}{6}</math>  <math>x = 15</math></p>	<p>4) Solve for x.</p> <p><math>3x + x + 2 = 90</math>  <math>4x + 2 = 90</math>  <math>-2 \quad -2</math>  <math>4x = 88</math>  <math>\frac{4x}{4} = \frac{88}{4}</math>  <math>x = 22</math></p>	<p>5) Solve for x.</p> <p><math>83 = 2x + 1</math>  <math>-1 \quad -1</math>  <math>82 = 2x</math>  <math>\frac{82}{2} = \frac{2x}{2}</math>  <math>x = 41</math></p>
<p>6) solve for x.</p> <p><math>89 + 57 + 5x - 6 = 180</math>  <math>5x + 140 = 180</math>  <math>-140 \quad -140</math>  <math>5x = 40</math>  <math>\frac{5x}{5} = \frac{40}{5}</math>  <math>x = 8</math></p>	<p>7) Solve for x.</p> <p><math>52 + 52 + 14x + 6 = 180</math>  <math>110 + 14x = 180</math>  <math>-110 \quad -110</math>  <math>14x = 70</math>  <math>\frac{14x}{14} = \frac{70}{14}</math>  <math>x = 5</math></p>	<p>8) Solve for x and <math>m\angle J</math></p> <p><math>x + 40 = 60</math>  <math>-40 \quad -40</math>  <math>x = 20</math></p> <p><math>180 - 120 = 60</math>  <math>180</math>  <math>-120</math>  <math>60</math></p>
<p>9. Solve for x.</p> <p><math>360</math>  <math>-110</math>  <math>-92</math>  <math>-88</math>  <math>70</math></p>	<p>10) Find x and y.</p> <p><math>68 = 8x + 12</math>  <math>-12 \quad -12</math>  <math>56 = 8x</math>  <math>\frac{56}{8} = \frac{8x}{8}</math>  <math>7 = x</math></p>	<p>11) Find x and y.</p> <p><math>180 - 120 = 60</math>  <math>180</math>  <math>-120</math>  <math>60</math></p>

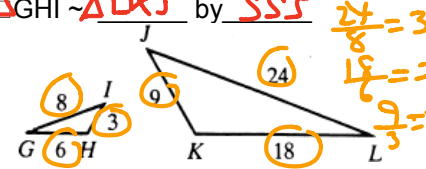
Name: \_\_\_\_\_

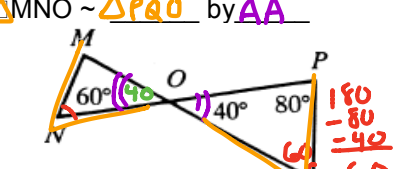
Block: \_\_\_\_\_

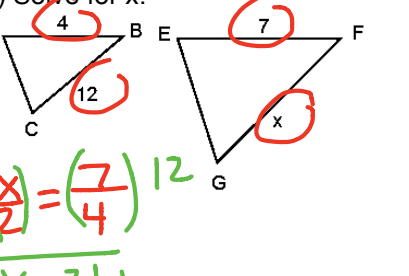
**Vocabulary:** SSS, SAS, ASA, AAS, HL, CPCTC, Reflexive Property, Definition of a Midpoint, Midsegment.

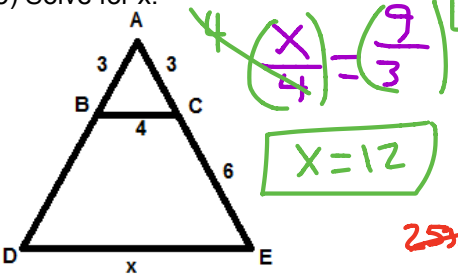
Determine if the following triangles are similar. (SSS, AA, SAS, None)

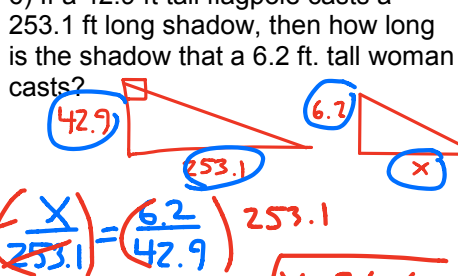
1)  $\triangle ABC \sim \triangle DEF$  by **SAS**  


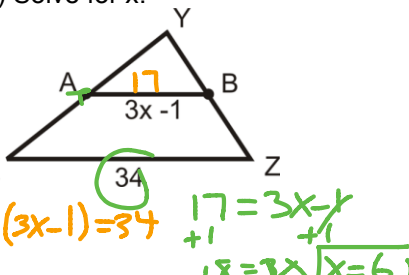
2)  $\triangle GHI \sim \triangle JKL$  by **SSS**  


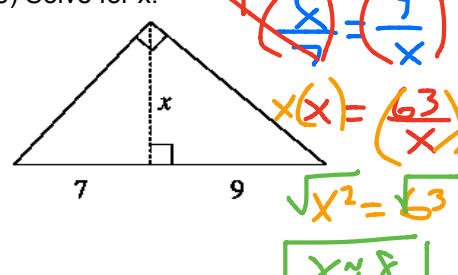
3)  $\triangle MNO \sim \triangle PQR$  by **AA**  


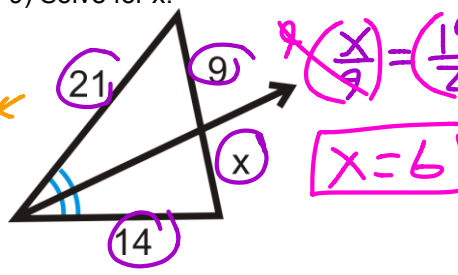
4) Solve for x.  


5) Solve for x.  


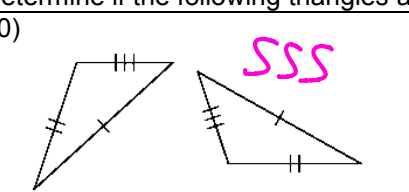
6) If a 42.9 ft tall flagpole casts a 253.1 ft long shadow, then how long is the shadow that a 6.2 ft. tall woman casts?  



7) Solve for x.  


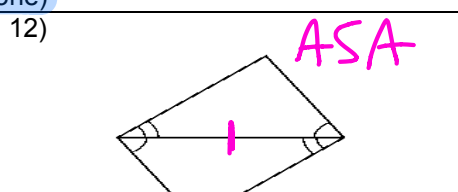
8) Solve for x.  


9) Solve for x.  


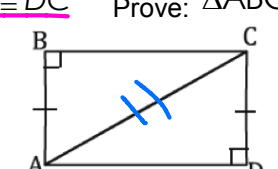
Determine if the following triangles are congruent. (SSS, SAS, ASA, AAS, HL, None)

10) **SSS**  


11) **none**  


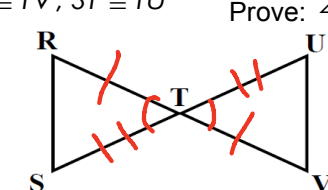
12) **ASA**  


13) Given:  $\overline{AB} \cong \overline{DC}$  Prove:  $\triangle ABC \cong \triangle CDA$



Statements	Reasons
1. $\overline{AB} \cong \overline{DC}$	1. Given
2. $\overline{AC} \cong \overline{AC}$	2. Reflexive
3. $\angle ABC$ & $\angle CDA$ are right angles.	3. Given
4. $\angle ABC \cong \angle CDA$	4. right angles are congruent
5. $\triangle ABC \cong \triangle CDA$	5. HL

14) Given:  $\overline{RT} \cong \overline{TV}$ ,  $\overline{ST} \cong \overline{TU}$  Prove:  $\angle TSR \cong \angle TUV$



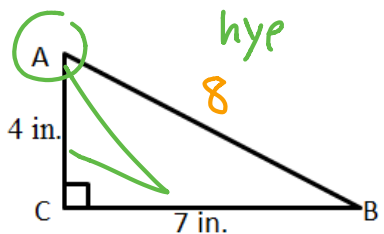
Statements	Reasons
1. $\overline{RT} \cong \overline{TV}$	1. Given
2. $\overline{ST} \cong \overline{TU}$	2. Given
3. $\angle RTS \cong \angle VTU$	3. Vertical
4. $\triangle RTS \cong \triangle TVU$	4. SAS
5. $\angle TSR \cong \angle TUV$	5. CPCTC

Name: \_\_\_\_\_

Block: \_\_\_\_\_

**Vocabulary:** Sine, cosine, tangent, complement.

$\sin A = \cos B$   
if  $A+B=90$



1) Find  $\sin A = \frac{7}{8} = .875$

2) Find  $\tan B = \frac{4}{7}$

3) Find  $\cos B = \frac{7}{8}$

4) Find  $\tan A = \frac{7}{4}$

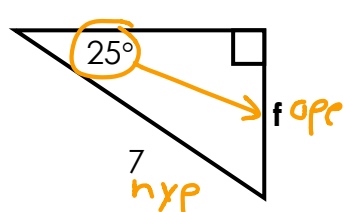
$a^2 + b^2 = c^2$   
 $4^2 + 7^2 = c^2$   
 $\sqrt{65} = c$   
 $c \approx 8$

5)  $\sin 75^\circ = \cos 15$   
 $90-75$

6)  $\cos 40^\circ = \sin 50$

7)  $\cos 54^\circ = \sin 36$

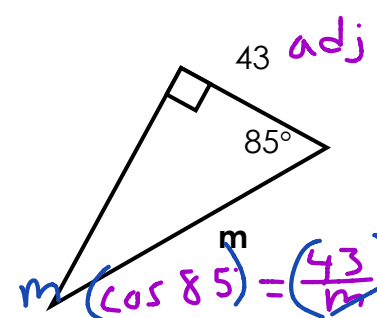
8) Find f.



$7(\sin 25) = \frac{f}{7}$

$f = 2.96$

9) Find m.

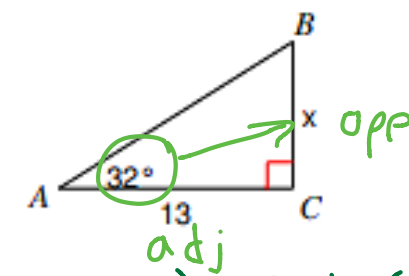


$m(\cos 85) = \frac{43}{m}$

$m \cdot \cos 85 = \frac{43}{\cos 85}$

$m = 493$

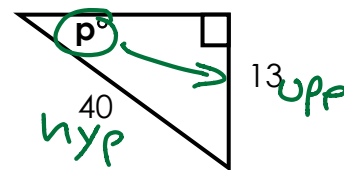
10) Find x.



$13(\tan 32) = \frac{x}{13}$

$x = 8.1$

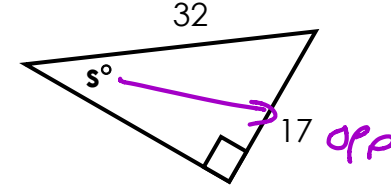
11) Find angle P.



$P = \sin^{-1}(\frac{13}{40})$

$P = 19^\circ$

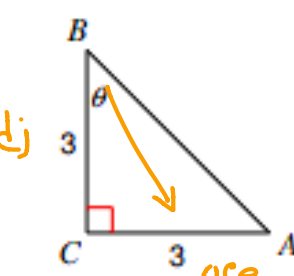
12) Find s.



$s = \sin^{-1}(\frac{17}{32})$

$s = 32^\circ$

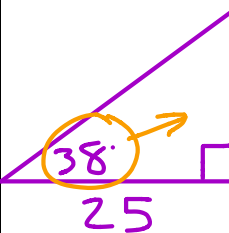
13) Solve for theta.



$\theta = \tan^{-1}(\frac{3}{3})$

$\theta = 45^\circ$

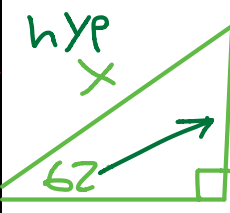
14) From 25 feet away from the base of a building, the angle of elevation from the ground to the top of a building is measured to be  $38^\circ$ . How tall is the building?



$x(\tan 38) = \frac{x}{25}$

$x = 19.5$

15) A kite is 35 feet in the air and the string forms an angle of  $62^\circ$  with the ground. How long is the string?



$x(\sin 62) = \frac{35}{x}$

$x \cdot \sin 62 = 35$

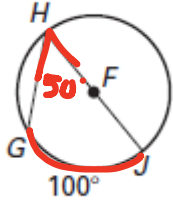
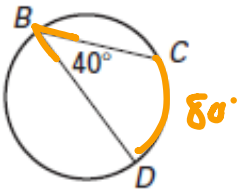
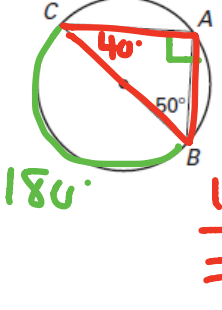
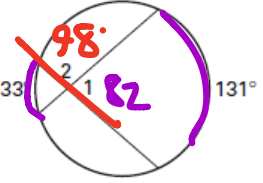
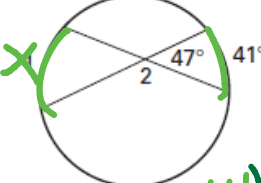
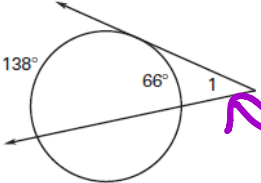
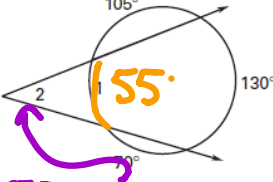
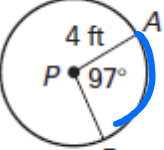
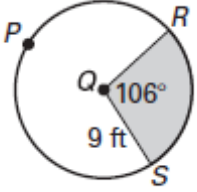
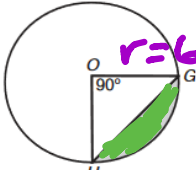
$x = \frac{35}{\sin 62}$

$x = 40$

Name: \_\_\_\_\_

Block: \_\_\_\_\_

**Vocabulary:** Inscribed angle, central angle, arc measure, sector, arc length.

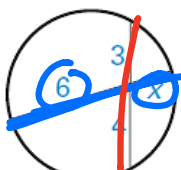
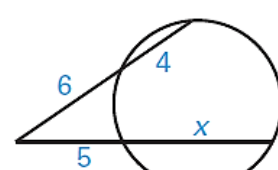
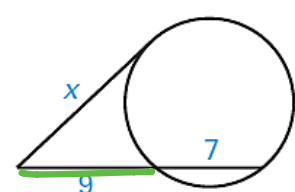
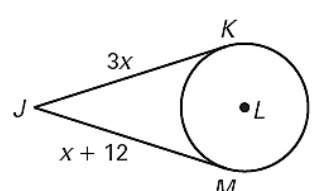
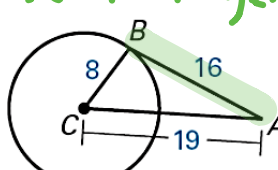
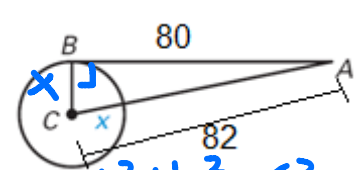
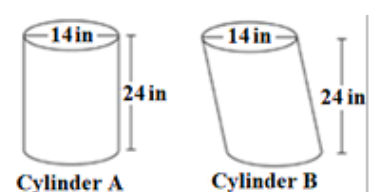
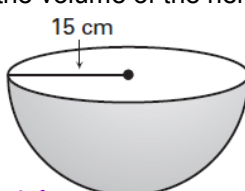

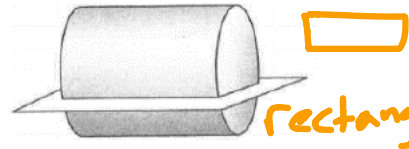
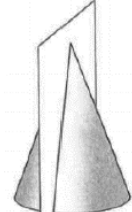
<p>1) Find <math>m\angle GHI</math></p> 	<p>2) Find <math>\widehat{CD}</math></p> 	<p>3) Find <math>m\angle C</math></p>  <p style="text-align: right;"> <math display="block">\begin{array}{r} 180 \\ - 90 \\ \hline = 90 \\ \hline 40 \end{array}</math> </p>
<p>4) Find <math>m\angle 1</math> and <math>m\angle 2</math></p>  <p style="text-align: left;"> <math display="block">180 - 82 = 98</math> <math display="block">\frac{33 + 98}{2} = 65.5</math> </p>	<p>5) Find 1 &amp; 2</p>  <p style="text-align: center;"> <math display="block">2(x + 41) = (47) \cdot 2</math> <math display="block">x + 41 = 47</math> <math display="block">x = 6</math> </p>	<p>6) Find 1.</p>  <p style="text-align: right;"> <math display="block">\frac{138 - 66}{2} = 36</math> </p>
<p>7) Find 1 &amp; 2.</p>  <p style="text-align: left;"> <math display="block">\frac{130 - 55}{2} = 37.5</math> <math display="block">360 - 130 = 230</math> <math display="block">\frac{230}{2} = 115</math> <math display="block">115 - 70 = 45</math> </p>	<p>8) Find the area of a circle with a diameter of 22 inches.</p> <p style="text-align: center;"> <math display="block">r = 11</math> <math display="block">A = \pi r^2</math> <math display="block">= \pi (11)^2</math> <math display="block">= 121\pi</math> <math display="block">\approx 380.1</math> </p>	<p>9) The circumference of a circle is 25.12 ft. What is the radius?</p> <p style="text-align: center;"> <math display="block">C = 2\pi r</math> <math display="block">\frac{25.12}{2\pi} = \frac{2\pi r}{2\pi}</math> <math display="block">r = 4</math> </p>
<p>10) Find the arc length of <math>\widehat{AB}</math></p>  <p style="text-align: left;"> <math display="block">AL = \frac{2\pi r \theta}{360}</math> <math display="block">AL = \frac{2\pi(4)(97)}{360}</math> <math display="block">\approx 6.77</math> </p>	<p>11) Find the area of the shaded region</p>  <p style="text-align: center;"> <math display="block">AS = \frac{\pi r^2 \theta}{360}</math> <math display="block">= \frac{\pi(9)^2(106)}{360}</math> <math display="block">\approx 74.9</math> </p>	<p>12) If the radius of the circle is 6 centimeters, what is the area of the shaded segment?</p>  <p style="text-align: center;"> <math display="block">AS = \frac{\pi(6)^2(90)}{360}</math> <math display="block">AS = 28.3</math> <math display="block">A = \frac{1}{2}bh</math> <math display="block">A = \frac{1}{2}(6)(6)</math> <math display="block">= 18</math> <math display="block">28.3 - 18 = 10.3</math> </p>

$A=18$

Name: \_\_\_\_\_

Block: \_\_\_\_\_

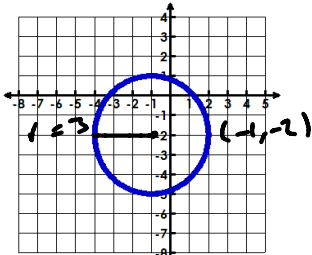
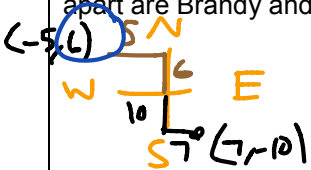
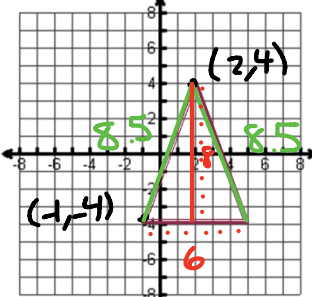
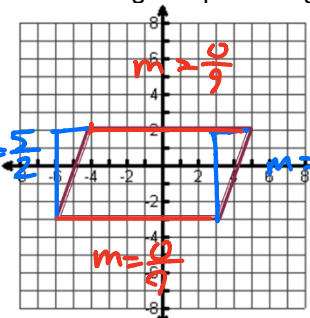
**Vocabulary:** Chord, tangent, volume, Cavalieri's Principle, Pythagorean Theorem, cross section.

<p>1) Find the value of x.</p>  <p><math>x(6) = 3 \cdot 4</math>  <math>\frac{6x}{6} = \frac{12}{6}</math>  <math>x = 2</math></p>	<p>2) Find the value of x.</p>  <p><math>6(6+4) = 5(5+x)</math>  <math>60 = 25 + 5x</math>  <math>-25 \quad -25</math>  <math>\frac{35}{5} = \frac{5x}{5}</math>  <math>x = 7</math></p>	<p>3) Find the value of x.</p>  <p><math>x(x) = 9(9+7)</math>  <math>\sqrt{x^2} = \sqrt{144}</math>  <math>x = 12</math></p>
<p>4) Find the value of x.</p>  <p><math>3x = x + 12</math>  <math>-x \quad -x</math>  <math>\frac{2x}{2} = \frac{12}{2}</math>  <math>x = 6</math></p>	<p>5) Is <math>\overline{AB}</math> a tangent? Why or why not?</p> <p>Not tangent</p>  <p><math>a^2 + b^2 = c^2</math>  <math>8^2 + 16^2 = 19^2</math>  <math>320 \neq 361</math></p>	<p>6) Find the value of x.</p>  <p><math>a^2 + b^2 = c^2</math>  <math>x^2 + 80^2 = 82^2</math>  <math>x^2 + 6400 = 6724</math>  <math>-6400 \quad -6400</math>  <math>\sqrt{x^2} = \sqrt{324}</math>  <math>x = 18</math></p>
<p>7) Based on Cavalieri's Principle, what should be the volume of each cylinder?</p>  <p><math>V = \pi r^2 h</math>  <math>= \pi (7)^2 (24)</math>  <math>= 1176\pi \approx 3695</math></p>	<p>8) Find the volume of the hemisphere.</p>  <p><math>V = \frac{4}{3} \pi r^3</math>  <math>= \frac{4}{3} \pi (15)^3</math>  <math>= \frac{4500\pi}{2} = 2250\pi</math></p>	<p>9) If the volume of a cone is <math>23 \text{ in}^3</math>, what is the volume of a cylinder with the same base area and height? Explain how you got to your answer?</p> <p><math>\Delta \Delta \Delta = \square</math>  <math>23(3)</math>  <math>69 \text{ in}^3</math></p>
<p>10) Find the volume of a square based pyramid.</p>  <p><math>V = \frac{1}{3} B \cdot h</math>  <math>V = \frac{1}{3} (16)(7)</math>  <math>V = 37.3</math></p> <p><math>A = b \cdot h</math>  <math>= 4 \cdot 4</math>  <math>= 16</math></p>	<p>11) Name the cross section</p>  <p>rectangle</p>  <p>triangle</p>	<p>12) The state of Georgia has a surface area of 59,425 square miles with an approximate population of 9,983,400 people. How many people per square mile live in Georgia?</p> <p><math>D = \frac{M}{V}</math>  <math>D = \frac{9,983,400}{59,425}</math>  <math>D = 168</math>      people per square mile</p>

Name: \_\_\_\_\_

Block: \_\_\_\_\_

**Vocabulary:** Midpoint, distance, partition, endpoint, circle

<p>1) Write the equation of the circle in standard form</p>  <p><math>(x-h)^2 + (y-k)^2 = r^2</math>  <math>(x+1)^2 + (y+2)^2 = 9</math></p>	<p>2) Find the midpoint of (5, 1) and (6, 7).</p> <p><math>(5, 1)</math>  <math>(6, 7)</math></p> <p><math>\frac{5+6}{2}</math>    <math>\frac{1+7}{2} = 4</math></p> <p><math>(5.5, 4)</math></p>	<p>3) Find the coordinates of the <b>other endpoint</b> of a segment with an endpoint of (-2, 2) and a midpoint (8, 3).</p> <p><math>(-2, 2)</math>  <math>(8, 3)</math>  <math>(18, 4)</math></p> <p>+10    +1  +10    +1</p>
<p>4) Brandy and Mandy are in the pool playing a game of Marco Polo. Brandy swims 10 ft south and 7 ft east of base. Mandy swims 6 ft north and 5 ft west from where they started together in the middle of the pool. How far apart are Brandy and Mandy?</p>  <p><math>d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}</math>  <math>d = \sqrt{(-2 - (-10))^2 + (-10 - 6)^2}</math>  <math>d = \sqrt{8^2 + (-16)^2}</math>  <math>d = \sqrt{64 + 256}</math>  <math>d = \sqrt{320}</math>  <math>d = 20</math></p>	<p>5) Determine whether Point A (-5, 8) lies on the circle whose center is Point C (1, 2) and which contains the Point P (7, -4).</p> <p><math>d = \sqrt{(7-1)^2 + (-4-2)^2} = \sqrt{36+36} = \sqrt{72}</math>  <math>d = \sqrt{(1-5)^2 + (2-8)^2} = \sqrt{16+36} = \sqrt{52}</math></p> <p>Same → YES</p>	
<p>6) Find the area and perimeter of the figure.</p>  <p><math>d = \sqrt{(-1-2)^2 + (-4-4)^2} = \sqrt{9+64} = \sqrt{73} \approx 8.5</math></p> <p><math>P = 8.5 + 8.5 + 6</math>  <math>P = 23</math></p> <p><math>A = \frac{1}{2} b \cdot h</math>  <math>A = \frac{1}{2} (6) (8)</math>  <math>A = 24</math></p>	<p>7) Given that a parallelogram's sides are parallel, prove the following is a parallelogram.</p>  <p><math>m = \frac{2}{4} = \frac{1}{2}</math>  <math>m = \frac{2}{4} = \frac{1}{2}</math>  <math>m = \frac{0}{4} = 0</math>  <math>m = \frac{0}{4} = 0</math></p> <p>It is a parallelogram because the opposite sides' slopes are the same.</p>	
<p>8) Write an equation of the line that passes through (-3, 4) and is parallel to <math>y = -3x - 1</math>.</p> <p><math>m = -3</math></p> <p><math>y - y_1 = m(x - x_1)</math>  <math>y - 4 = -3(x + 3)</math>  <math>y - 4 = -3x - 9</math>  <math>y = -3x - 5</math></p>	<p>9) Write an equation of the line that passes through (5, -3) and is perpendicular to <math>y = -5/2x + 1</math>.</p> <p><math>m = \frac{2}{5}</math></p> <p><math>y - y_1 = m(x - x_1)</math>  <math>y + 3 = \frac{2}{5}(x - 5)</math>  <math>y + 3 = \frac{2}{5}x - 2</math>  <math>y = \frac{2}{5}x - 5</math></p>	
<p>10) Find a point P on the segment with endpoints A(-1, -3) and B(7, 1) that partitions it in a 3:1 ratio.</p> <p><math>\frac{3}{4} (+8)</math>    <math>(-1, -3)</math>    <math>(7, 1)</math>  <math>(5, 0)</math></p>	<p>11) Find a point T on the segment with endpoints C(-4, -6) and D(2, 3) that partitions it in a 2:1 ratio.</p> <p><math>\frac{2}{3} (+6)</math>    <math>(-4, -6)</math>    <math>(2, 3)</math>  <math>(0, 0)</math></p>	

Name: \_\_\_\_\_

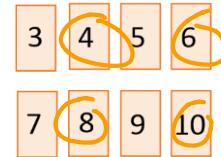
Block: \_\_\_\_\_

**Vocabulary:** Independent events, dependent events, conditional probability, Addition Rule, Multiplication Rule for Independent Events, outcome, overlapping events, union, intersection

**Employment Survey Results**

Employment Status	Age (in Years)		Total
	Less than 18	18 or greater	
Has Job	20	587	607
Does Not Have Job	245	92	337
<b>Total</b>	<b>265</b>	<b>679</b>	<b>944</b>

5) Martin has 8 cards. What is the probability (as a percentage) of getting an even number or a 10?



$$\frac{4}{8} + \frac{1}{8} - \frac{1}{8} = \frac{4}{8} = \frac{1}{2}$$

Mutually exclusive or overlapping

6) You spin a spinner. What is the probability of spinning a 4 or landing on an odd number?



$$\frac{1}{10} + \frac{5}{10} = \frac{6}{10} = \frac{3}{5}$$

Mutually exclusive or overlapping

1) Find the probability that a randomly selected person will have a job, given they are older than 18.  $P(\text{job} | \text{older than 18})$ .

$$\frac{587}{679}$$

2) What is the probability that person has a job?

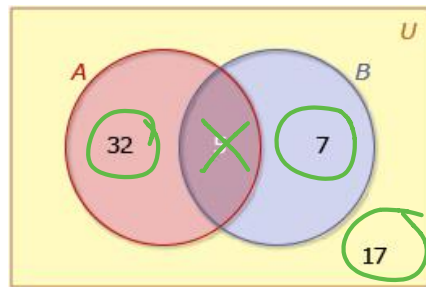
$$\frac{607}{944}$$

3) Find the  $P(\text{Does not have a job and is less than 18})$

$$\frac{245}{944}$$

4) Find the probability that a randomly selected person has no job, given they are older than 18?

$$\frac{92}{679} = .14 = 14\%$$



7) Find  $P(A) = \frac{37}{61}$

8) Find  $P(B) = \frac{12}{61}$

9) Find  $P(B)' = \frac{49}{61}$

10) Find  $P(A \cup B) = \frac{44}{61}$

11) Find  $P(A \cap B) = \frac{5}{61}$

12) Find  $P(\overline{A \cap B}) = \frac{56}{61}$

13) You are guessing at two questions on a multiple-choice test. Each question has 4 answer choices. What is the probability you guess both questions correct?

$$\frac{1}{4} \cdot \frac{1}{4} = \frac{1}{16}$$

Independent or dependent

14. There is 1 red goldfish and 4 yellow goldfish. You randomly choose two goldfish without replacement. What is the probability that the first fish is red and the second is gold?

$$\frac{1}{5} \cdot \frac{4}{4} = \frac{4}{20}$$



Independent or dependent

15) Are the events independent?

$$P(A) = \frac{3}{10}; P(B) = \frac{3}{20}; P(A \cap B) = \frac{9}{200}$$

Independent or dependent

16) Are the events independent?

$$P(A) = 0.08; P(B) = 0.4; P(A \cap B) = 0.12 = .032$$

Independent or dependent