

Name: _____ Date: _____ Block: _____

Geometry Semester Review - Chapter 1 Pt. 2

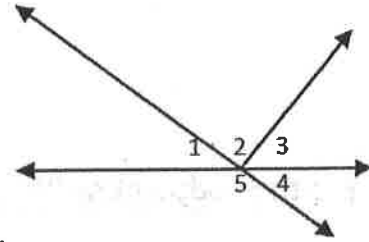
1. Name all pairs of supplementary angles.

2. Name all linear pairs.

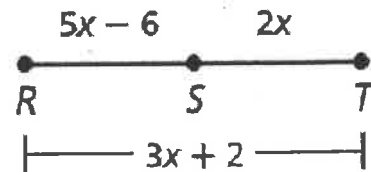
2. Name a pair of angles that are adjacent, but do not form a linear pair.

3. Name a pair of congruent angles, and tell why they are congruent.

4. Name a pair of non-adjacent angles.

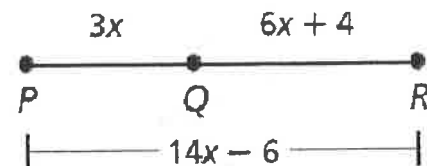


5. S is between R and T. Find RT.



6. Y is between X and Z. $XY = 13.8$, and $XZ = 21.4$. Find YZ.

7. Q is between P and R. Find PR.

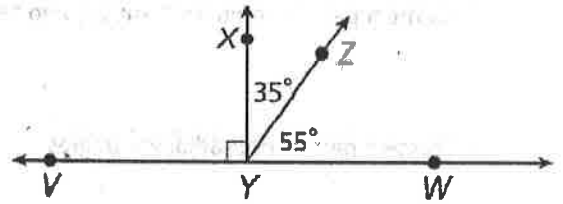


8. U is the Midpoint of TV, $TU = 3X + 4$, and $UV = 5X - 2$. Find TU, UV, and TV.

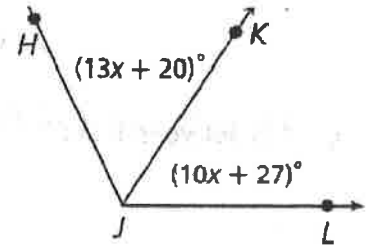
9. E is the midpoint of DF, $DE = 9X$, and $EF = 4X + 10$. Find DE, EF, and DF.

10. Classify each angle as acute, right, or obtuse.

- a. $\angle XYW$ b. $\angle ZYW$ c. $\angle XYZ$

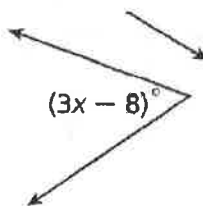


11. If $m\angle HJL = 116^\circ$, find the $m\angle HJK$.

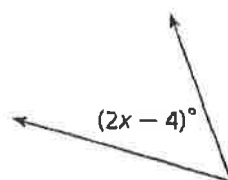


12. \overline{NP} bisects $\angle MNQ$, $m\angle MNP = (6x - 12)^\circ$, and $m\angle PNQ = (4x + 8)^\circ$. Find $m\angle MNQ$.

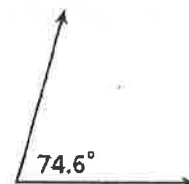
13. Find the complement.



14. Find the Supplement



15. Find the complement.



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GEOMETRY – Semester Review Chapter 2

1. Write the converse, inverse, and contrapositive. Determine which one will always be true.

$p \rightarrow q$ Conditional: "If you live in Oklahoma, then you live in the United States."

Converse: _____

Inverse: _____

Contrapositive: _____

2. Use the true statements below to determine whether each conclusion is true or false.

"Sue is a member of the swim team. When the team practices, Sue swims. The team begins practice when the pool opens. The pool opens at 8 AM on weekdays and at noon on Saturdays."

- a. The swim team practices on weekdays only. _____
- b. Sue swims on Saturdays. _____
- c. Swim team practice starts at the same time every day. _____

3. Which conclusion is valid for the situation below?

If two angles are complementary, then the sum of their measures is 90° .

$\angle A$ and $\angle B$ are complementary.

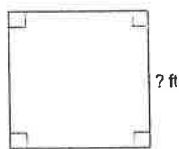
- a. $m\angle A = 90^\circ$
- b. $m\angle A = 90^\circ + m\angle B$
- c. $m\angle A = 90^\circ - m\angle B$
- d. $\angle A$ is a right angle.

4. Solve each equation. Write a justification for each step.

a. $\frac{m}{-5} + 3 = -4.5$

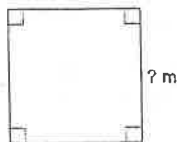
b. $-47 = 3x - 59$

5. Find the perimeter of the square.



Area = 121 ft^2

6. Find the perimeter of the square.



Area = 49 m^2

7. Identify the property that justifies each statement.

- _____ a. $25 = 25$
- _____ b. If $\angle RST \cong \angle ABC$, then $\angle ABC \cong \angle RST$
- _____ c. $2x = 9$, and $y = 9$, so $2x = y$.
- _____ d. $\angle XYZ \cong \angle XYZ$
- _____ e. If $x = y$, then $x + 5 = y + 5$
- _____ f. If $x = y$, then $2x = 2y$.
- _____ g. $3(x + y) = 3x + 3y$
- _____ h. If $x = y$, then $y = x$.
- _____ i. If $x = y$, then $\frac{x}{w} = \frac{y}{w}$.
- _____ j. If $x = y$, then $x - 7 = y - 7$

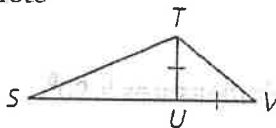
- A. Transitive Property of Congruence
- B. Symmetric Property of Congruence
- C. Reflexive Property of Congruence
- D. Division Property of Equality
- E. Mult. Property of Equality
- F. Subtraction Property of Equality
- G. Addition Property of Equality
- H. Distributive Property
- I. Substitution Property of Equality
- J. Transitive Property of Equality
- K. Symmetric Property of Equality
- L. Reflexive Property of Equality

8. Fill in the blanks to complete the two-column proof.

Given: $\overline{TU} \cong \overline{UV}$

Prove: $SU + TU = SV$

Two-column proof:



Statements	Reasons
1. $\overline{TU} \cong \overline{UV}$	1. a. ?
2. b. ?	2. Def. of \cong segs.
3. c. ?	3. Seg. Add. Post.
4. $SU + TU = SV$	4. d. ?

a.

b.

c.

d.

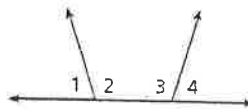
9.

Fill in the blanks to complete the two-column proof.

Given: $m\angle 1 + m\angle 3 = 180^\circ$

Prove: $\angle 1 \cong \angle 4$

Proof:



Statements	Reasons
1. $m\angle 1 + m\angle 3 = 180^\circ$	1. a. ?
2. b. ?	2. Def. of supp. \sphericalangle
3. $\angle 3$ and $\angle 4$ are supplementary.	3. Lin. Pair Thm.
4. $\angle 3 \cong \angle 4$	4. c. ?
5. d. ?	5. \cong Supps. Thm.

a.

b.

c.

d.

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Geometry – Chapter 3 Review

Find the slope of the line through each pair of points.

1) $(-8, -4), (8, -6)$

2) $(6, -11), (4, -14)$

3) $(-2, 18), (-13, -18)$

Find the slope of the line parallel to each given line.

4) $y = -\frac{7}{3}x + 3$

5) $y = 3x + 1$

6) $y = \frac{3}{4}x - 2$

Find the slope of the line perpendicular to each given line.

7) $y = 5x + 2$

8) $y = -\frac{3}{4}x - 3$

9) $y = \frac{7}{3}x + 3$

Write the equation of each line that passes through the given point with the given slope.

10) Through $(3, 5)$ with slope -7

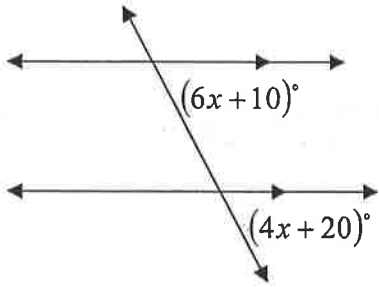
11. Through $(-5, -3)$ with slope $\frac{8}{5}$

12) Tom and Jerry start at the same point. Tom walks straight south for 3 miles, while Jerry walks straight west for 2 miles. What is their exact distance apart?

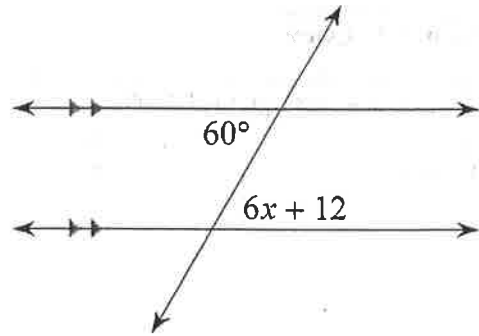
13. What is the area of a circle with diameter of 7 m?

Find the value of all missing variables.

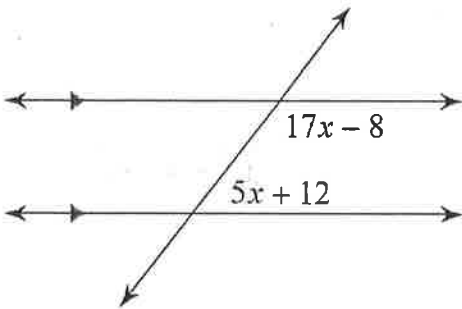
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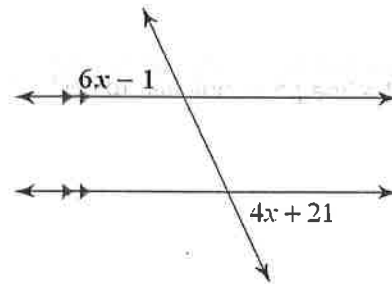
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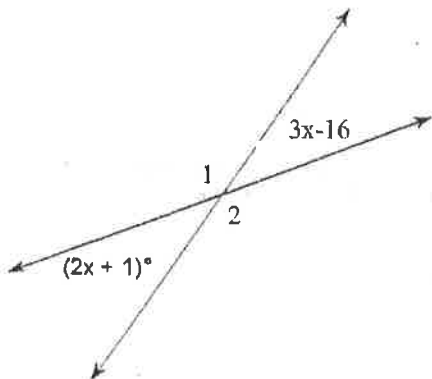
16.



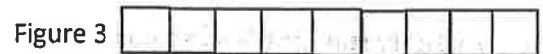
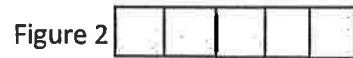
17.



18. What is the measure of angle 2?



19. Which expression represents the pattern for the number of cubes in figure n ?



a) $n(n + 3 + 4)$

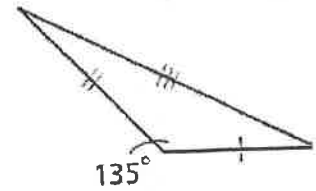
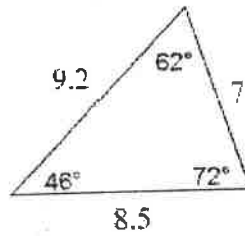
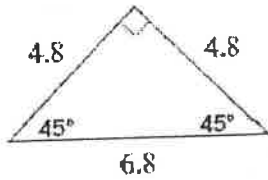
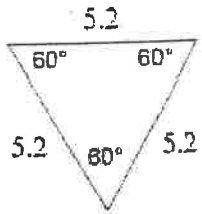
b) $2n - 1$

c) $\frac{n(n+3)}{2}$

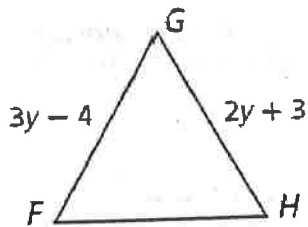
d) $\frac{n(n+2)}{2}$

Geometry – Semester Review Chapter 4

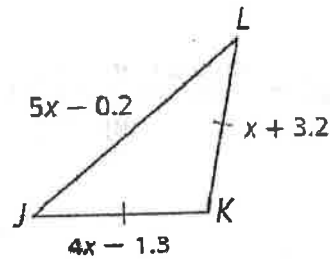
1. Classify each triangle by angle measure and side length.



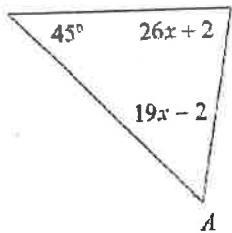
2. Given equilateral triangle FGH, find the length of FH.



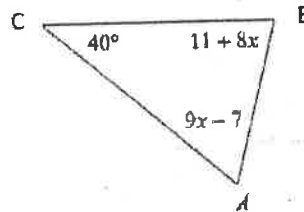
3. Find the length of LJ.



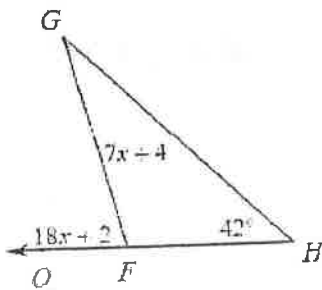
4. Find the measure of Angle A.



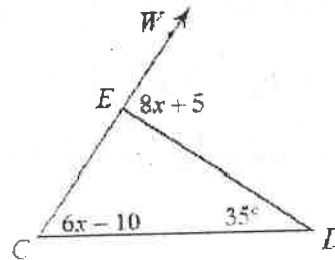
5. Find the value of x.



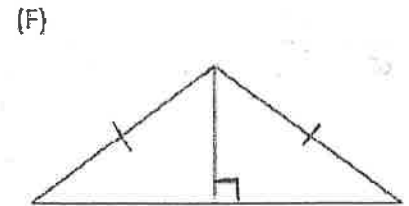
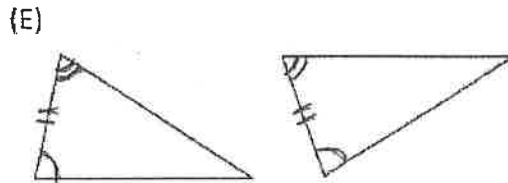
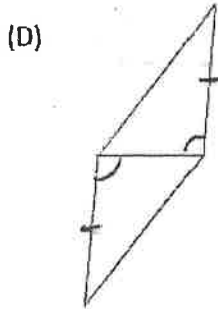
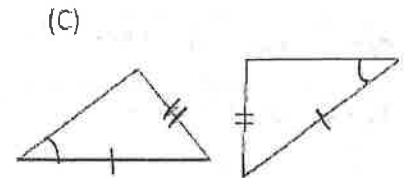
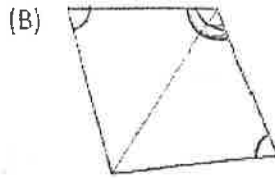
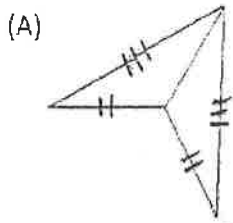
6. Find the value of x.



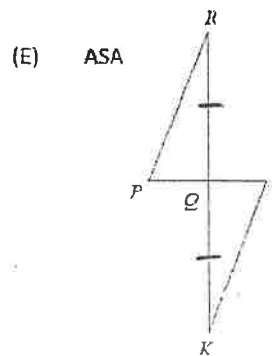
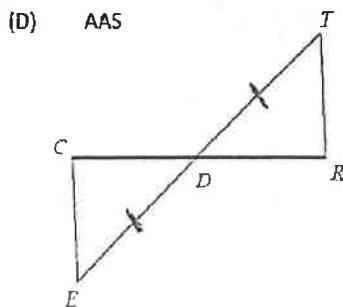
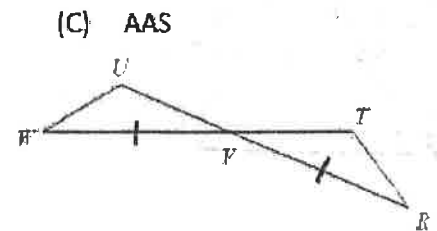
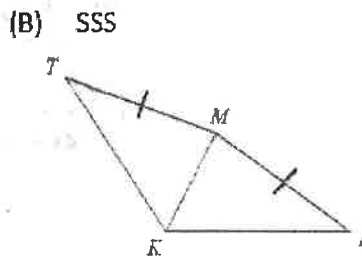
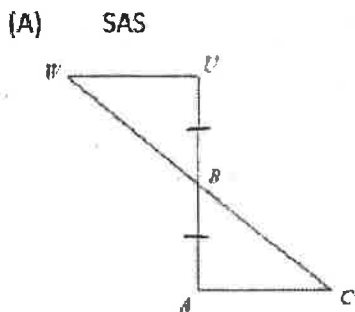
7. Find the measure of angle WED.



8. If possible, tell which shortcut could be used to prove the two triangles are congruent. (AAS, SAS, ASA, HL)



9. State what extra information is needed in order to prove the triangles are congruent by the given shortcut.



10. Write a rule that would translate a triangle 2 units left and 3 units down.

- a) $(x, y) \rightarrow (x+2, y+3)$ b) $(x, y) \rightarrow (x-3, y+2)$ c) $(x, y) \rightarrow (x-2, y-3)$ d) $(x, y) \rightarrow (x+2, y-3)$

11. Write a rule that would translate a triangle 5 units right and 7 units up.

12. Write a rule that would translate a triangle 3 units left and 4 units up.

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Geometry Semester Review - Chapter 1 Pt. 2

1. Name all pairs of supplementary angles.

$\angle 1 + \angle 5, \angle 4 + \angle 5$

2. Name all linear pairs.

$\angle 1 + \angle 5, \angle 4 + \angle 5$

2. Name a pair of angles that are adjacent, but do not form a linear pair.

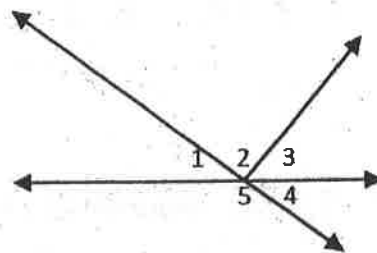
$\angle 1, \angle 2; \angle 2, \angle 3; \angle 3, \angle 4$

3. Name a pair of congruent angles, and tell why they are congruent.

$\angle 1 \cong \angle 4$ by vertical \angle 's

4. Name a pair of non-adjacent angles.

$\angle 1 + \angle 3, \angle 2 + \angle 4, \angle 3 + \angle 5, \angle 4 + \angle 1, \angle 5 + \angle 2$



5. S is between R and T. Find RT.

$5x - 6 + 2x = 3x + 2$

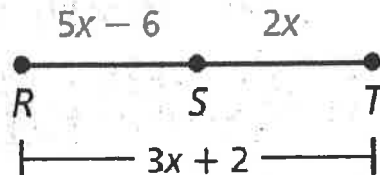
$$\begin{array}{r} 7x - 6 = 3x + 2 \\ -3x \quad -3x \\ \hline 4x - 6 = 2 \end{array}$$

$$\begin{array}{r} 4x - 6 = 2 \\ +6 \quad +6 \\ \hline 4x = 8 \end{array}$$

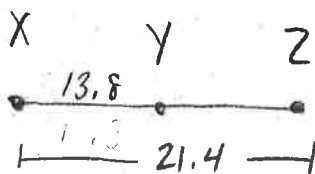
$$\frac{4x}{4} = \frac{8}{4}$$

$x = 2$

$RT = 3(2) + 2 = 8$



6. Y is between X and Z.
- $XY = 13.8$
- , and
- $XZ = 21.4$
- . Find YZ.



$XY + YZ = XZ$

$13.8 + YZ = 21.4$

$$\begin{array}{r} 13.8 + YZ = 21.4 \\ -13.8 \quad -13.8 \\ \hline YZ = 7.6 \end{array}$$

$YZ = 7.6$

7. Q is between P and R. Find PR.

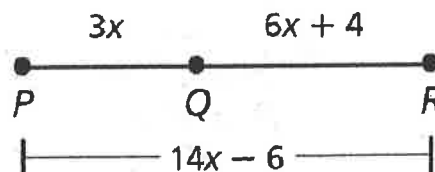
$3x + 6x + 4 = 14x - 6$

$$\begin{array}{r} 9x + 4 = 14x - 6 \\ -9x \quad -9x \\ \hline 4 = 5x - 6 \end{array}$$

$$\begin{array}{r} 4 = 5x - 6 \\ +6 \quad +6 \\ \hline 10 = 5x \end{array}$$

$$\frac{10}{5} = \frac{5x}{5}$$

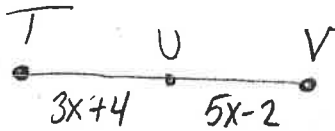
$2 = x$



$PR = 14(2) - 6$

$PR = 22$

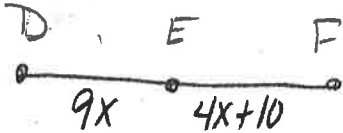
8. U is the Midpoint of TV, $TU = 3X + 4$, and $UV = 5X - 2$. Find TU, UV, and TV.



$$\begin{array}{r} 3x+4 = 5x-2 \\ -3x \quad -3x \\ \hline 4 = 2x-2 \\ +2 \quad +2 \\ \hline 6 = 2x \\ \frac{6}{2} = \frac{2x}{2} \quad x=3 \end{array}$$

$$\begin{array}{l} TU = 3(3) + 4 = 13 \\ UV = 13 \\ TV = 26 \end{array}$$

9. E is the midpoint of DF, $DE = 9X$, and $EF = 4X + 10$. Find DE, EF, and DF.

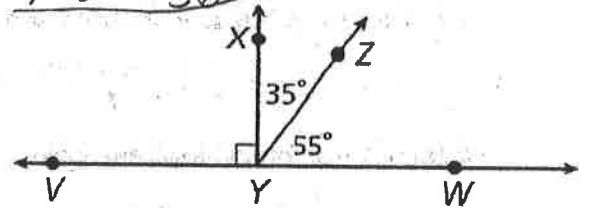


$$\begin{array}{r} 9x = 4x + 10 \\ -4x \quad -4x \\ \hline 5x = 10 \\ \frac{5x}{5} = \frac{10}{5} \quad x=2 \end{array}$$

$$\begin{array}{l} DE = 9(2) = 18 \\ EF = 18 \\ DF = 36 \end{array}$$

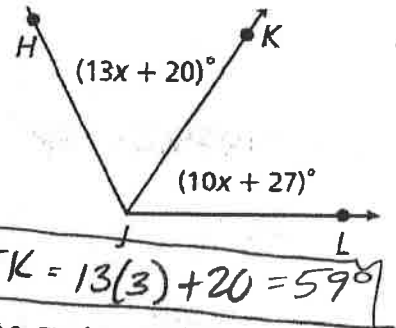
10. Classify each angle as acute, right, or obtuse.

a. $\angle XYW$ b. $\angle ZYV$ c. $\angle XYZ$
Right Obtuse Acute



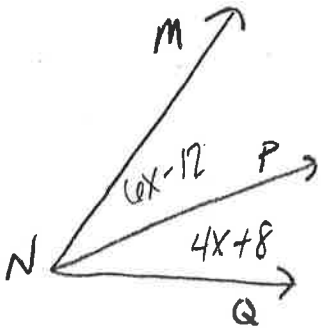
11. If $m\angle HJL = 116^\circ$, find the $m\angle HJK$.

$$\begin{array}{r} 13x + 20 + 10x + 27 = 116 \\ 23x + 47 = 116 \\ -47 \quad -47 \\ \hline 23x = 69 \\ \frac{23x}{23} = \frac{69}{23} \\ x=3 \end{array}$$



$$m\angle HJK = 13(3) + 20 = 59^\circ$$

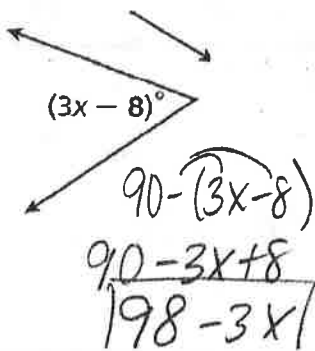
12. \overline{NP} bisects $\angle MNQ$, $m\angle MNP = (6x - 12)^\circ$, and $m\angle PNQ = (4x + 8)^\circ$. Find $m\angle MNQ$.



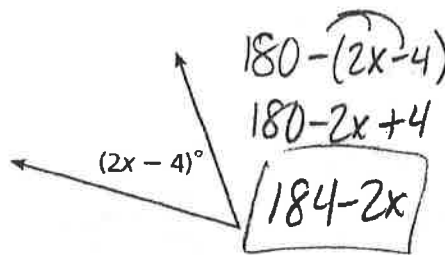
$$\begin{array}{r} 6x - 12 = 4x + 8 \quad (\text{Def. of Bisector}) \\ -4x \quad -4x \\ \hline 2x - 12 = 8 \\ +12 \quad +12 \\ \hline 2x = 20 \\ \frac{2x}{2} = \frac{20}{2} \\ x = 10 \end{array}$$

$$\begin{array}{l} m\angle MNQ = 2(m\angle MNP) \\ m\angle MNQ = 2(6(10) - 12) \\ m\angle MNQ = 2(48) = 96^\circ \end{array}$$

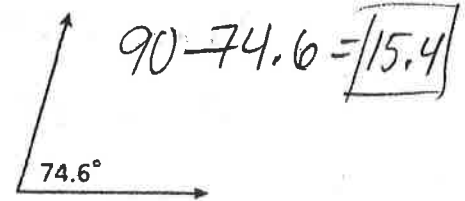
13. Find the complement.



14. Find the Supplement



15. Find the complement.



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GEOMETRY – Semester Review Chapter 2

1. Write the converse, inverse, and contrapositive. Determine which one will always be true.

$p \rightarrow q$ Conditional: "If you live in Oklahoma, then you live in the United States."

$q \rightarrow p$ Converse: If you live in US, then you live in OK

$\sim p \rightarrow \sim q$ Inverse: If you don't live in OK, then you don't live in US.

$\sim q \rightarrow \sim p$ Contrapositive: If you don't live in US, then you don't live in OK.

2. Use the true statements below to determine whether each conclusion is true or false.

"Sue is a member of the swim team. When the team practices, Sue swims. The team begins practice when the pool opens. The pool opens at 8 AM on weekdays and at noon on Saturdays."

a. The swim team practices on weekdays only. F

b. Sue swims on Saturdays. T

c. Swim team practice starts at the same time every day. F

3. Which conclusion is valid for the situation below?

If two angles are complementary, then the sum of their measures is 90° .

$\angle A$ and $\angle B$ are complementary.

a. $m\angle A = 90^\circ$

b. $m\angle A = 90^\circ + m\angle B$

c. $m\angle A = 90^\circ - m\angle B$

d. $\angle A$ is a right angle.

4. Solve each equation. Write a justification for each step.

a. $\frac{m}{-5} + 3 = -4.5$
 $\quad -3 \quad -3$ Subtraction POE

$\frac{m}{-5} = -7.5$ Simp.

$m = 36.5$ multi. POE

b. $-47 = 3x - 59$

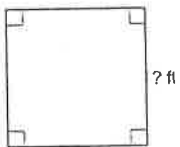
$\frac{-47 + 59}{3} = \frac{3x - 59 + 59}{3}$ Add POE

$\frac{12}{3} = \frac{3x}{3}$ Simp.

Div. POE

$4 = x$ Simplify

5. Find the perimeter of the square.



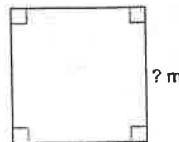
Area = 121 ft^2

$A = s^2$
 $\sqrt{121} = \sqrt{s^2}$

$11 = s$

$P = 4(11) = 44 \text{ ft}$

6. Find the perimeter of the square.



Area = 49 m^2

$A = s^2$

$49 = s^2$

$\sqrt{49} = \sqrt{s^2}$

$7 = s$

$P = 4(7) = 28 \text{ ft}$

7. Identify the property that justifies each statement.

- L a. $25 = 25$
B b. If $\angle RST \cong \angle ABC$, then $\angle ABC \cong \angle RST$
J c. $2x = 9$, and $y = 9$, so $2x = y$.
C d. $\angle XYZ \cong \angle XYZ$
G e. If $x = y$, then $x + 5 = y + 5$
E f. If $x = y$, then $2x = 2y$.
H g. $3(x + y) = 3x + 3y$
K h. If $x = y$, then $y = x$.
D i. If $x = y$, then $\frac{x}{w} = \frac{y}{w}$.
F j. If $x = y$, then $x - 7 = y - 7$

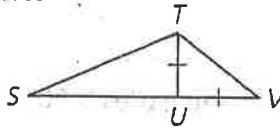
- A. Transitive Property of Congruence
 B. Symmetric Property of Congruence
 C. Reflexive Property of Congruence
 D. Division Property of Equality
 E. Mult. Property of Equality
 F. Subtraction Property of Equality
 G. Addition Property of Equality
 H. Distributive Property
 I. Substitution Property of Equality
 J. Transitive Property of Equality
 K. Symmetric Property of Equality
 L. Reflexive Property of Equality

8. Fill in the blanks to complete the two-column proof.

Given: $\overline{TU} \cong \overline{UV}$

Prove: $SU + TU = SV$

Two-column proof:



Statements	Reasons
1. $\overline{TU} \cong \overline{UV}$	1. a. ?
2. b. ?	2. Def. of \cong segs.
3. c. ?	3. Seg. Add. Post.
4. $SU + TU = SV$	4. d. ?

a. Given

b. $TU = UV$

c. $SU + UV = SV$

d. Substitution

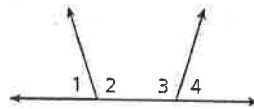
9.

Fill in the blanks to complete the two-column proof.

Given: $m\angle 1 + m\angle 3 = 180^\circ$

Prove: $\angle 1 \cong \angle 4$

Proof:



Statements	Reasons
1. $m\angle 1 + m\angle 3 = 180^\circ$	1. a. ?
2. b. ?	2. Def. of supp. \angle
3. $\angle 3$ and $\angle 4$ are supplementary.	3. Lin. Pair Thm.
4. $\angle 3 \cong \angle 4$	4. c. ?
5. d. ?	5. \cong Supps. Thm.

a. Given

b. $\angle 1 + \angle 3$ are Supp.

c. Reflexive POC

d. $\angle 1 \cong \angle 4$

(KEY)

Name: _____ Date: _____ Block: _____

Geometry - Chapter 3 Review

Find the slope of the line through each pair of points.

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

1) (-8, -4), (8, -6)

$x_1 \ y_1 \ x_2 \ y_2$

$$m = \frac{-6 - (-4)}{8 - (-8)} = \frac{-2}{16} = \boxed{-\frac{1}{8}}$$

2) (6, -11), (4, -14)

$x_1 \ y_1 \ x_2 \ y_2$

$$m = \frac{-14 - (-11)}{4 - 6} = \frac{-3}{-2} = \boxed{\frac{3}{2}}$$

3) (-2, 18), (-13, -18)

$x_1 \ y_1 \ x_2 \ y_2$

$$m = \frac{-18 - 18}{-13 - (-2)} = \frac{-36}{-11} = \boxed{\frac{36}{11}}$$

Find the slope of the line parallel to each given line. (Parallel → Same slope)

4) $y = -\frac{7}{3}x + 3$

$y = mx + b$
↑
slope

$$m = \boxed{-\frac{7}{3}}$$

5) $y = 3x + 1$

$$m = \boxed{3}$$

6) $y = \frac{3}{4}x - 2$

$$m = \boxed{\frac{3}{4}}$$

Find the slope of the line perpendicular to each given line. (Perpendicular → opposite reciprocals)

7) $y = 5x + 2$

$$m = \boxed{\frac{1}{5}}$$

$$\text{perp. slope} = \boxed{-\frac{1}{5}}$$

8) $y = -\frac{3}{4}x - 3$

$$m = \boxed{-\frac{3}{4}}$$

$$\text{perp. slope} = \boxed{\frac{4}{3}}$$

9) $y = \frac{7}{3}x + 3$

$$m = \boxed{\frac{7}{3}}$$

$$\text{perp. slope} = \boxed{-\frac{3}{7}}$$

Write the equation of each line that passes through the given point with the given slope.

10) Through (3, 5) with slope -7

$$y = mx + b$$

$$5 = -7(3) + b$$

$$5 = -21 + b$$

$$+21 \ +21$$

$$26 = b$$

$$y = \boxed{-7x + 26}$$

11. Through (-5, -3) with slope $\frac{8}{5}$

$$y = mx + b$$

$$-3 = \frac{8}{5}(-5) + b$$

$$-3 = -8 + b$$

$$+8 \ +8 \quad b = 5$$

$$y = \boxed{\frac{8}{5}x + 5}$$

12) Tom and Jerry start at the same point. Tom walks straight south for 3 miles, while Jerry walks straight west for 2 miles. What is their exact distance apart?



$$a^2 + b^2 = c^2$$

$$2^2 + 3^2 = c^2$$

$$4 + 9 = c^2$$

$$13 = c^2$$

$$c = \boxed{\sqrt{13}}$$

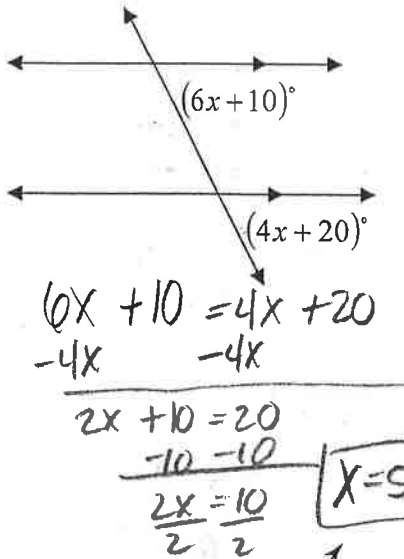
13. What is the area of a circle with diameter of 7 m?

$$A = \pi r^2$$

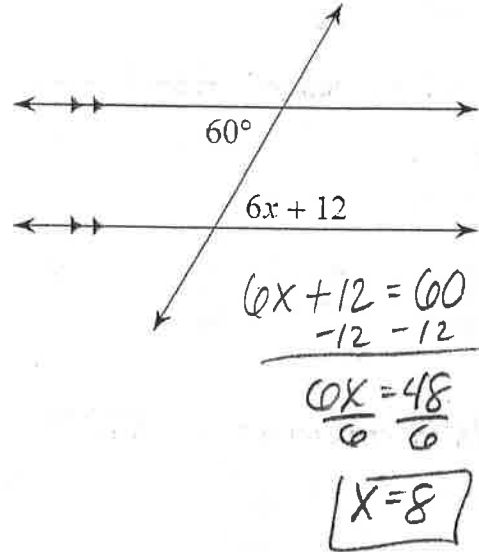
$$A = \pi (3.5)^2 = \boxed{38.5 \text{ m}^2}$$

Find the value of all missing variables.

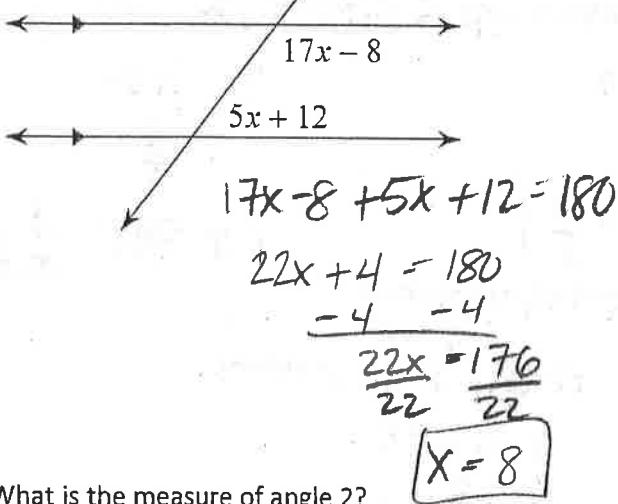
14.



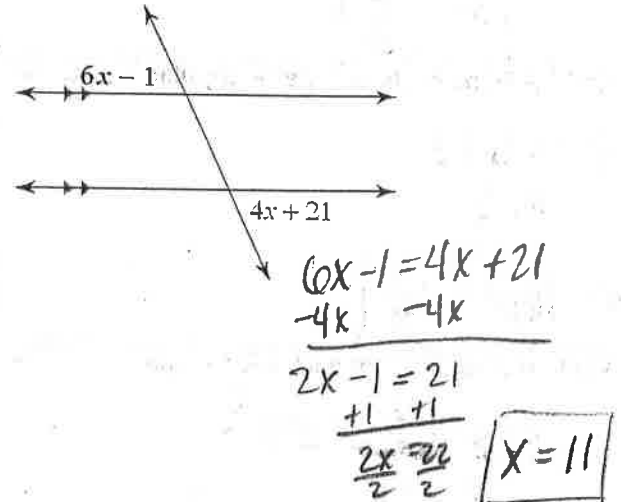
15.



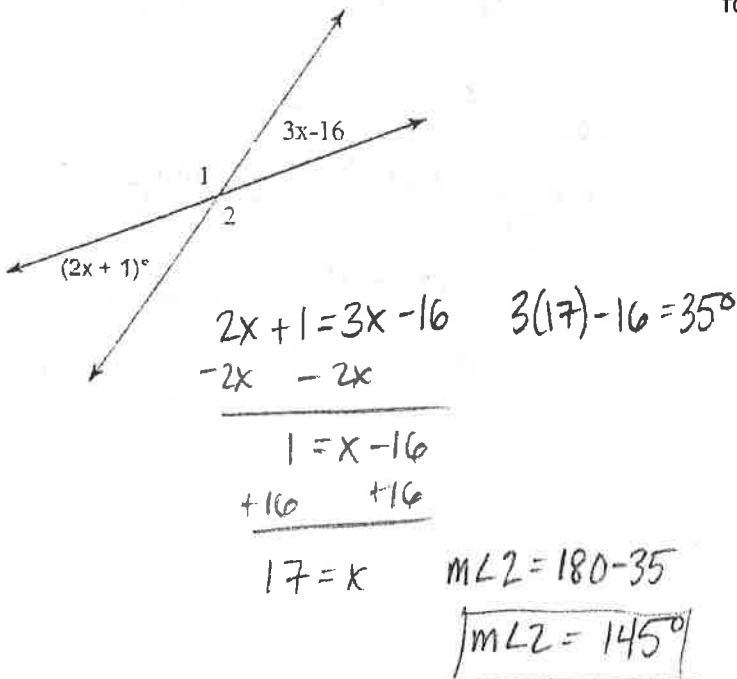
16.



17.



18. What is the measure of angle 2?



19. Which expression represents the pattern for the number of cubes in figure n?

Figure 1

Figure 2

Figure 3

a) $n(n+3+4)$

b) $2n-1$

c) $\frac{n(n+3)}{2}$

d) $\frac{n(n+2)}{2}$

$\frac{n(n+3)}{2}$

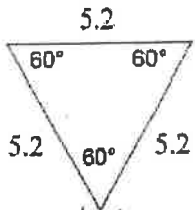
Fig 1: $n=1 \quad \frac{1(1+3)}{2} = 2$

Fig 2: $n=2 \quad \frac{2(2+3)}{2} = 5$

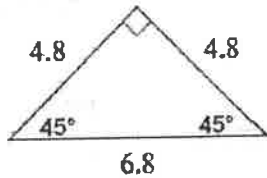
Fig 3: $n=3 \quad \frac{3(3+3)}{2} = 9$

Geometry – Semester Review Chapter 4

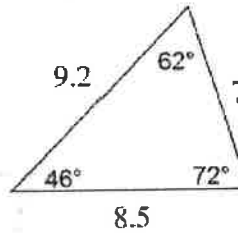
1. Classify each triangle by angle measure and side length.



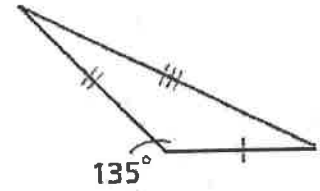
Equilateral
Equiangular



Right Isosceles

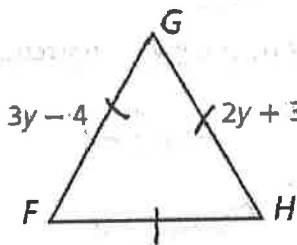


Acute Scalene



Obtuse Scalene

2. Given equilateral triangle FGH, find the length of FH.

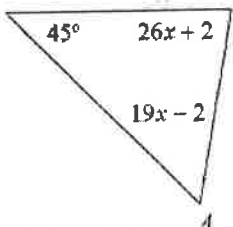


$$\begin{array}{r} 3y - 4 = 2y + 3 \\ -2y \quad -2y \\ \hline y - 4 = 3 \\ + 4 \quad + 4 \\ \hline y = 7 \end{array}$$

$$GH = 2(7) + 3 = 17$$

$$FH = GH = 17$$

4. Find the measure of Angle A.

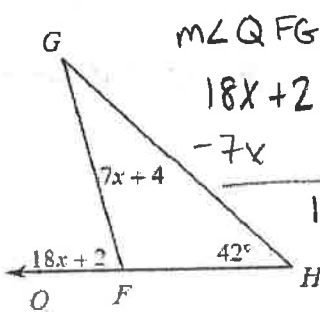


$$45 + 26x + 2 + 19x - 2 = 180$$

$$\begin{array}{r} 45x + 45 = 180 \\ -45 \quad -45 \\ \hline 45x = 135 \\ \frac{45x}{45} = \frac{135}{45} \\ x = 3 \end{array}$$

$$m\angle A = 19(3) - 2 = 55^\circ$$

6. Find the value of x.



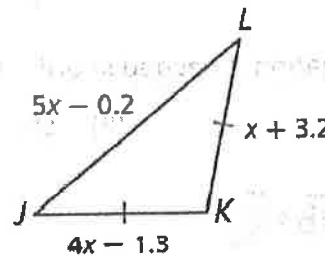
$$m\angle QFG = m\angle FGH + m\angle GHF$$

$$18x + 2 = 7x + 4 + 42$$

$$\begin{array}{r} 18x + 2 = 7x + 4 + 42 \\ -7x \quad -7x \\ \hline 11x + 2 = 46 \\ -2 \quad -2 \\ \hline 11x = 44 \\ \frac{11x}{11} = \frac{44}{11} \\ x = 4 \end{array}$$

$$x = 4$$

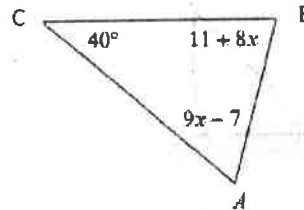
3. Find the length of LJ.



$$\begin{array}{r} 4x - 1.3 = x + 3.2 \\ -x \quad -x \\ \hline 3x - 1.3 = 3.2 \\ +1.3 \quad +1.3 \\ \hline 3x = 4.5 \\ \frac{3x}{3} = \frac{4.5}{3} \\ x = 1.5 \end{array}$$

$$\begin{array}{l} LJ = 5(1.5) - 0.2 \\ LJ = 7.3 \end{array}$$

5. Find the value of x.

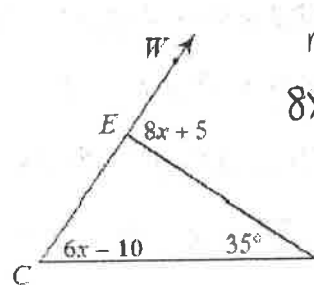


$$40 + 11 + 8x + 9x - 7 = 180$$

$$\begin{array}{r} 17x + 44 = 180 \\ -44 \quad -44 \\ \hline 17x = 136 \\ \frac{17x}{17} = \frac{136}{17} \\ x = 8 \end{array}$$

$$x = 8$$

7. Find the measure of angle WED.



$$m\angle WED = m\angle C + m\angle D$$

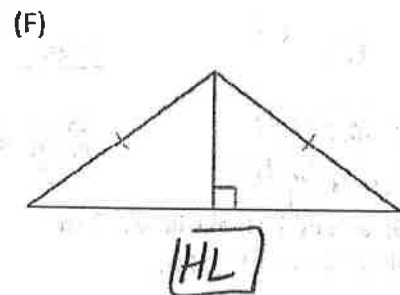
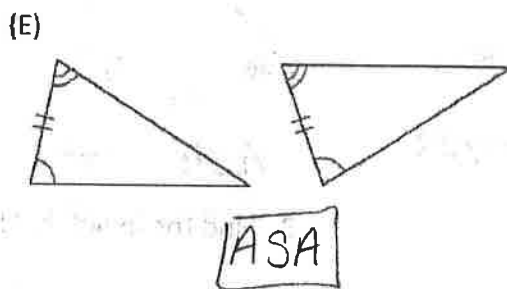
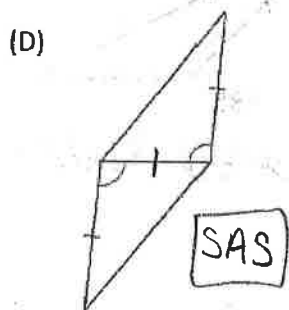
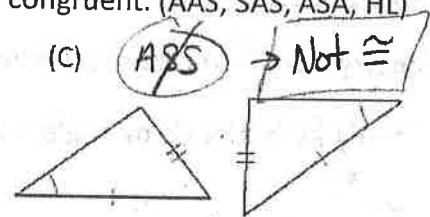
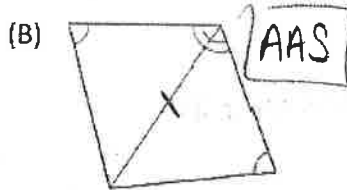
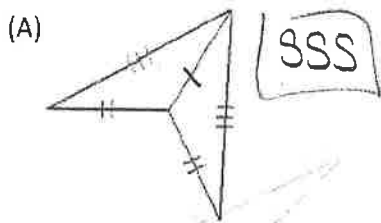
$$8x + 5 = 6x - 10 + 35$$

$$\begin{array}{r} 8x + 5 = 6x - 10 + 35 \\ -6x \quad -6x \\ \hline 2x + 5 = 25 \\ -5 \quad -5 \\ \hline 2x = 20 \\ \frac{2x}{2} = \frac{20}{2} \\ x = 10 \end{array}$$

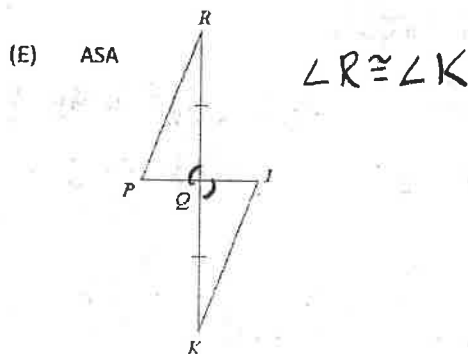
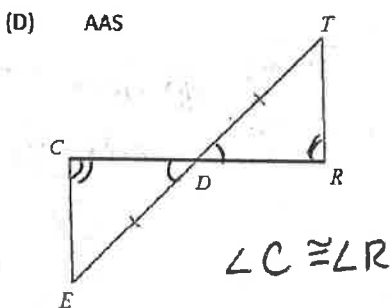
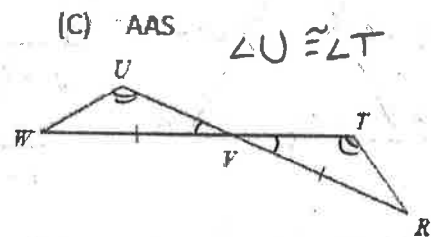
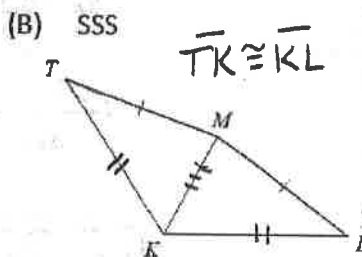
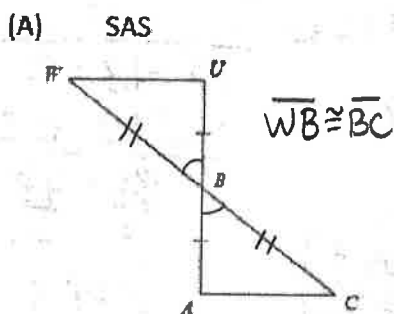
$$\begin{array}{l} m\angle WED = 8(10) + 5 \\ = 85^\circ \end{array}$$

$$x = 10$$

8. If possible, tell which shortcut could be used to prove the two triangles are congruent. (AAS, SAS, ASA, HL)



9. State what extra information is needed in order to prove the triangles are congruent by the given shortcut.



10. Write a rule that would translate a triangle 2 units left and 3 units down.

a) $(x, y) \rightarrow (x+2, y+3)$

b) $(x, y) \rightarrow (x-3, y+2)$

c) $(x, y) \rightarrow (x-2, y-3)$

d) $(x, y) \rightarrow (x+2, y-3)$

11. Write a rule that would translate a triangle 5 units right and 7 units up.

$(x, y) \rightarrow (x+5, y+7)$

12. Write a rule that would translate a triangle 3 units left and 4 units up.

$(x, y) \rightarrow (x-3, y+4)$