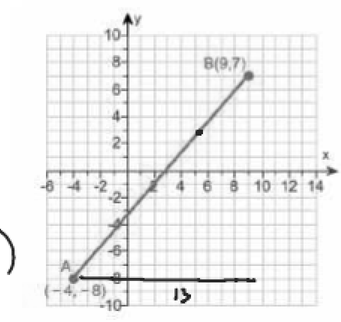
Geometry
Chapter 2 Review

Name ________________
Date ________ Per _____

Spiral Review

1. Find a counter example to show that the statement is not true. If angles are supplementary then they form a linear pair.

2. Find the coordinates of the point $\frac{7}{10}$ of the way from A to B.



Distance x-values
$9-(-4)=13$

$(13)\left(\frac{7}{10}\right)=\frac{91}{10}=9.1$

Distance y-values
$7-(-8)=15$

$15\left(\frac{7}{10}\right)=10.5$

$-4+9.1=5.1$
$-8+10.5=2.5$

$(5.1, 2.5)$

3. Consider the statement: If James has 2 dimes, then he has at least 20 cents.
   a. Is this a true statement? Justify your reasoning.

True

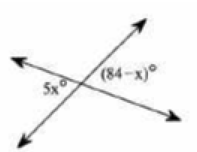
   b. Write the converse of the given statement. Is the converse a true statement? Explain.

If James has at least 20 cents, then he has at least 2 dimes.

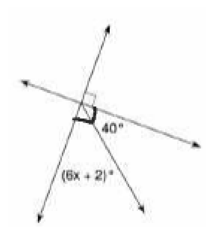
False

20 pennies
5 Nickels

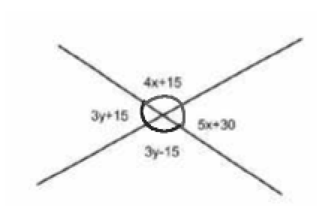
4. Find the value of the variable.



$5x = 84 - x$
$6x = 84$
$x = 14$



$6x+2+40=90$
$6x+42=90$
$6x=48$
$x=8$



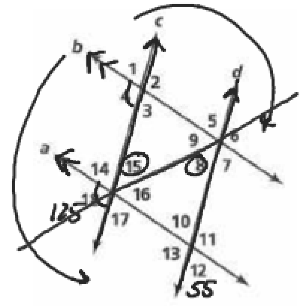
$3y+15+3y-15=180$
$6y=180$
$y=30$

$4x+15+5x+30=180$
$9x+45=180$
$9x=135$
$x=15$

Properties of Parallel Lines

Section: Properties of Parallel Lines

Use the figure to answer each question in this section.



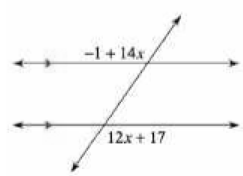
5. If $c \parallel d, a \parallel b, and\ m\angle 12 = 55°, then\ m\angle 4 =$ 125°

180−55

6. If $\angle 15 \cong \angle 8$ then which two lines are parallel? Explain your answer.

c ∥ d Converse of Alternate Int ∠'s.

7. Find the value of x.



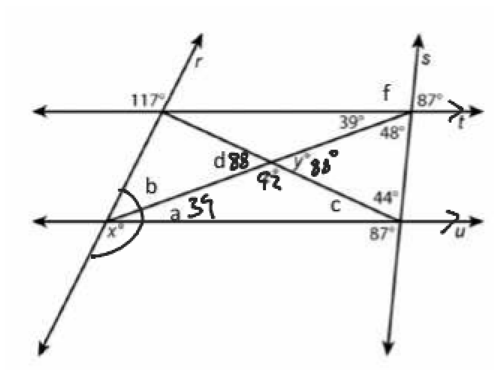
$-1+14x = 12x + 17$

$-1 + 2x = 17$

$2x = 18$

$x = 9$

8. Use the figure to the right. Lines ~~a, b, c, and d~~ r, s, t, u intersect as shown.



a. Which pairs of lines are parallel?

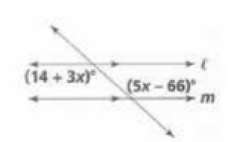
t ∥ u

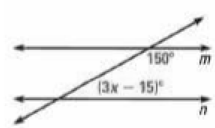
b. Find the values of the variables.

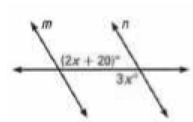
a = 39° b = 24 c = 49 d = 88

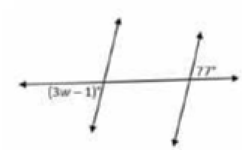
f = 93 x = 117 y = 88 z = 92

9. Find the value of the variable that will make the lines parallel.









$14+3x = 5x-66$

$14 = 2x - 66$

$80 = 2x$

$x = 40$

$3x - 15 + 150 = 180$

$3x + 135 = 180$

$3x = 45$

$x = 15$

$2x + 20 = 3x$

$x = 20$

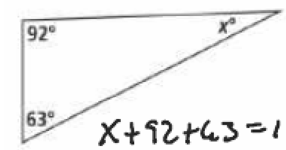
$3w - 1 = 77$

$3w = 78$

$w = 26$

Section: Parallel Lines and the Triangle Sum – Theorem

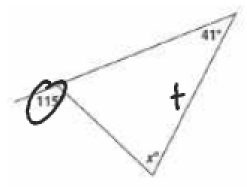
10. Find the value of the variable.



X+92+63=180

X+155=180

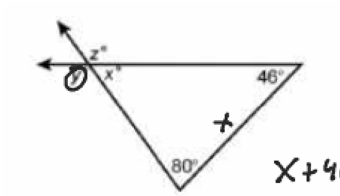
X=25



X+41=115

X=74

11. Given the figure, find the value of the variables.



y= 46+80

y=126

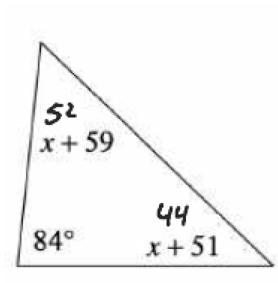
z=126

X+46+80=180

X+126=180

X=54

12. Find the value of x.



X+59+84+X+51=180

2x+194=180

2X=-14

X=-7

Section: Slopes of Parallel and Perpendicular Lines.

Same slope Opposite Riciprocal

13. Are the lines, parallel, perpendicular, or neither?

m

$y = \frac{2}{3}x + 5$

$3x + 2y = 8$ → y=mx+b

$\frac{2y}{2} = \frac{-3x}{2} + \frac{8}{2}$ $y = -\frac{3}{2}x + 4$

$\left(\frac{2}{3}\right)\left(-\frac{3}{2}\right) = \frac{-6}{6}$

$= -1$

Perpendicular

14. Write an equation (slope-intercept form) for the line that is parallel to $y = -4x + 5$ that contains the point (1, -6)

x_1 y_1

m=-4

m=-4

$y - y_1 = m(x - x_1)$

$y - (-6) = -4(x - 1)$

$y + 6 = -4x + 4$

$y = -4x - 2$

$$Y - Y_1 = m(x - x_1)$$

15. Write an equation (slope-intercept form) for the line that is perpendicular to $y = 3x - 2$ and passes through the point (9, -2)

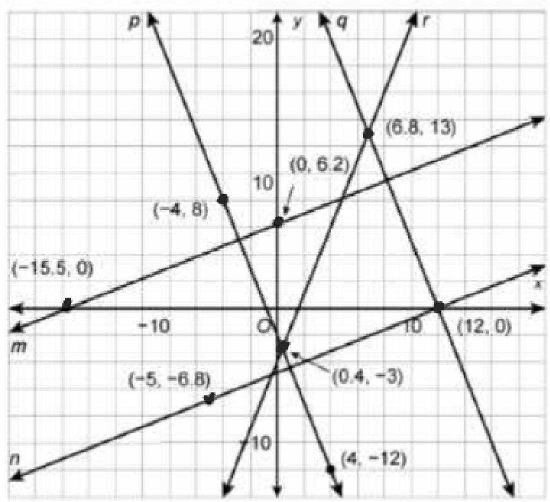
$m = \frac{-1}{3}$

$Y - (-2) = -\frac{1}{3}(x - 9)$

$Y + 2 = -\frac{1}{3}x + 3$

$Y = -\frac{1}{3}x + 1$

16. Given the following figure, find which lines will be parallel and perpendicular. Verify using slopes.



$\text{Slope} = \frac{Y_2 - Y_1}{X_2 - X_1}$

$m = \frac{6.2 - 0}{0 - (-15.5)} = \frac{2}{5}$

$n = \frac{0 - (-6.8)}{12 - (-5)} = \frac{6.8}{17} = \frac{2}{5}$

$p = \frac{-3 - 8}{.4 - (-4)} = -2.5 = -\frac{5}{2}$

$q = \frac{0 - 13}{12 - 6.8} = -2.5 = -\frac{5}{2}$

$r = \frac{13 - (-3)}{6.8 - .4} = 2.5 = \frac{5}{2}$

$m \parallel n$ $\quad p \parallel q$

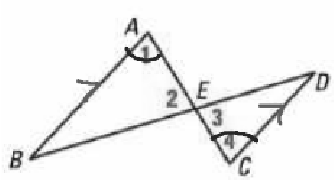
$m \perp p$ $\quad n \perp p$

$m \perp q$ $\quad n \perp q$

Section: Proofs

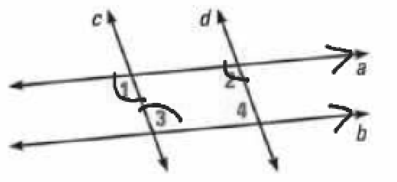
GIVEN ▶ $\angle 1 \cong \angle 2, \angle 3 \cong \angle 4$

PROVE ▶ $\overline{AB} \parallel \overline{CD}$



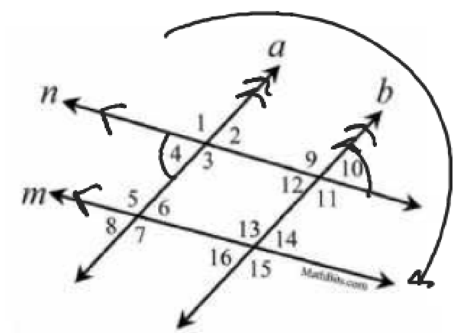
Statement	Reason
1. $\angle 1 \cong \angle 2$, $\angle 3 \cong \angle 4$	1. Given
2. $\angle 2 \cong \angle 3$	2. Vertical $\angle$'s
3. $\angle 1 \cong \angle 4$	3. Substitution prop
4. $\overline{AB} \parallel \overline{CD}$	4. Converse Alt Int $\angle$'s

GIVEN ▶ $a \parallel b$, $\angle 2 \cong \angle 3$
PROVE ▶ $c \parallel d$



Statement	Reason
1. $a \parallel b$ $\angle 2 \cong \angle 3$	1. Given
2. $\angle 1 \cong \angle 3$	2. Alt Int ∠'s ≅
3. $\angle 1 \cong \angle 2$	3. Substitution Property
4. $c \parallel d$	4. Converse Corresponding ∠'s

Given: $m \parallel n$ *and* $a \parallel b$
Prove $\angle 4$ *is supplementary* $\angle 15$



Statement	Reason
1. $m \parallel n$ and $a \parallel b$	1. Given
2. $\angle 4 \cong \angle 10$	2. Alt Ext ∠'s
3. $\angle 10$ *and* $\angle 15$ *are supplementray*	3. Same-Side Ext ∠'s
4. $m\angle 10 + m\angle 15 = 180$	4. Definition of Supplementary Angles
5. $m\angle 4 = m\angle 10$	5. Def ≅ ∠'s
6. $m\angle 4 + m\angle 15 = 180$	6. Substitution Property
7. $\angle 4 + \angle 15$ are supp	7. Def of Supp ∠'s