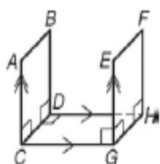


Chapter 3 Review

Lesson 3.1

For Exercises 5–8, identify each of the following in the figure.

- 5. a pair of parallel segments
- 6. a pair of skew segments
- 7. a pair of perpendicular segments
- 8. a pair of parallel planes



Many Possibilities for #s 5-7!

Identify the transversal and classify each angle pair.

- $\angle 4$ and $\angle 6$

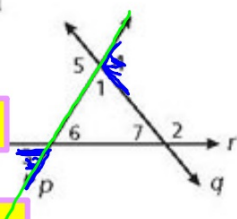
p (trans) corr \angle

- $\angle 1$ and $\angle 2$

- $\angle 3$ and $\angle 4$

p (trans) Alt. ext \angle

- $\angle 6$ and $\angle 7$



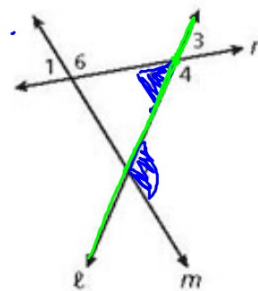
Identify the transversal and classify each angle pair.

- 10. $\angle 5$ and $\angle 2$ *line l / Alt*

- 11. $\angle 6$ and $\angle 3$

- 12. $\angle 2$ and $\angle 4$

- 13. $\angle 1$ and $\angle 2$



2. $m\angle BEF$

corr = $7x - 14 = 4x + 19$
 $3x - 33$
 $x = 11$

BEF = $4(11) + 19 = 44 + 19 = 63$

Lesson 3.2
 Corr =
 AIA =
 AEA =

4. $m\angle CBY$

SSI = 180

$6x + 3x + 9 = 180$
 $9x + 9 = 180$
 $9x = 171$
 $x = 19$

CBY = $3(19) + 9 = 66$

SSI = 180

Find each angle measure.

6. $m\angle KLM$

$y = 115$

7. $m\angle VYX$

$4a = 2a + 50$
 $2a = 50$
 $a = 25$
 $VYX = 100$

8. $m\angle ABC$

$x = 116$

9. $m\angle EFG$

$13x + 17x = 180$
 $30x = 180$
 $x = 6$
 $EFG = 17(6) = 102$

10. $m\angle PQR$

AEA =
 $3n - 45 = 2n + 15$
 $n = 60$
 $PQR = 180 - (2n + 15)$
 $2(60) + 15 = 135$ $PQR = 180 - 135 = 45$

11. $m\angle STU$

$4x - 14 = 3x + 12$
 $x = 26$
 $STU = 180 - (3(26) + 12)$
 $= 180 - (72 + 12) = 180 - 84 = 96$

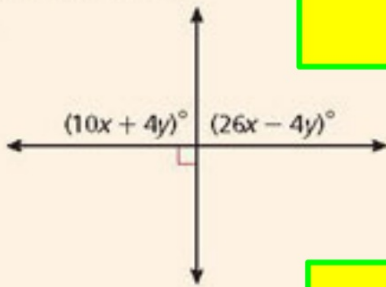
pg. 158

Lesson 3.2ish

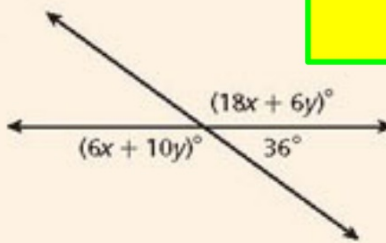
SKIP

Solve for x and y .

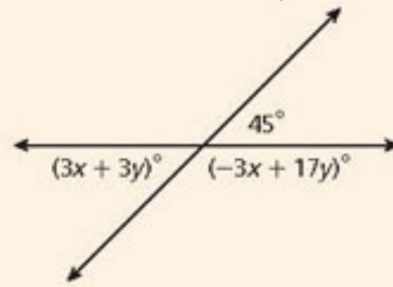
1.



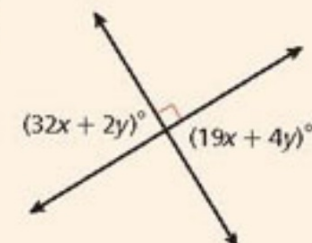
3.



2.



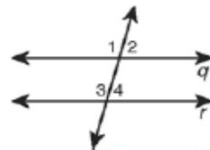
4.



Lesson 3.3

Converse of the Corresponding Angles Postulate	If two coplanar lines are cut by a transversal so that a pair of corresponding angles are congruent, then the two lines are parallel.
---	---

You can use the Converse of the Corresponding Angles Postulate to show that two lines are parallel.



Given: $\angle 1 \cong \angle 3$

$$\angle 1 \cong \angle 3$$

$\angle 1 \cong \angle 3$ are corresponding angles.

$$q \parallel r$$

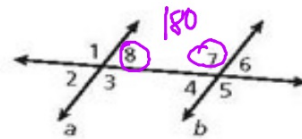
Converse of the Corresponding Angles Postulate

You can also prove that two lines are parallel by using the converse of any of the other theorems that you learned in Lesson 3-2.

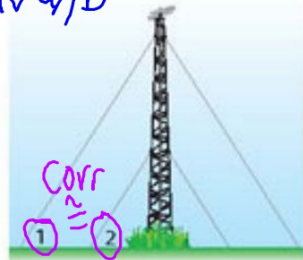
Theorem	Hypothesis	Conclusion
Converse of the Alternate Interior Angles Theorem	 $\angle 2 \cong \angle 3$	$a \parallel b$
Converse of the Alternate Exterior Angles Theorem	 $\angle 1 \cong \angle 4$	$f \parallel g$
Converse of the Same-Side Interior Angles Theorem	 $m\angle 1 + m\angle 2 = 180^\circ$	$s \parallel t$

3-3 Proving Lines Parallel

Use the given information and the theorems and postulates you have learned to show that $a \parallel b$.

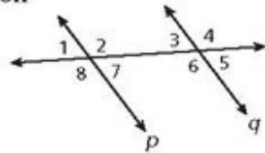


12. $m\angle 8 = (13x + 20)^\circ$, $m\angle 6 = (7x + 38)^\circ$, $x = 3$ *Substitute*
 13. $\angle 1 \cong \angle 5$ *AEA = so //*, $13(3) + 20 = 7(3) + 38$
 14. $m\angle 8 + m\angle 7 = 180^\circ$ *SSI = 180 so //*, $39 + 20 = 21 + 38$
 15. $m\angle 8 = m\angle 4$ *AIA = so //*, $59 = 59 \checkmark a/b$
 16. The tower shown is supported by guy wires such that $m\angle 1 = (3x + 12)^\circ$, $m\angle 2 = (4x - 2)^\circ$, and $x = 14$. Show that the guy wires are parallel.



$m1 = 3(14) + 12 = 54$
 $m2 = 4(14) - 2 = 54$
 $m1 = m2$ so corr = makes // lines

Use the given information and theorems and postulates you have learned to show that $p \parallel q$.



- $m\angle 2 + m\angle 3 = 180^\circ$

SSI = 180 so $p \parallel q$

- $\angle 8 \cong \angle 6$

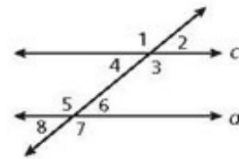
corr = so $p \parallel q$

- $m\angle 1 = (7x - 3)^\circ$, $m\angle 5 = 5x + 15$, $x = 9$

$7(9) - 3 = 5(9) + 15$

$63 - 3 = 45 + 15$ $60 = 60$ so $p \parallel q$

Use the given information and theorems and postulates you have learned to show that $c \parallel d$.



- 18. $m\angle 4 = 58^\circ$, $m\angle 6 = 58^\circ$
- 19. $m\angle 1 = (23x + 38)^\circ$, $m\angle 5 = (17x + 56)^\circ$, $x = 3$
- 20. $m\angle 6 = (12x + 6)^\circ$, $m\angle 3 = (21x + 9)^\circ$, $x = 5$
- 21. $m\angle 1 = 99^\circ$, $m\angle 7 = (13x + 8)^\circ$, $x = 7$

18. $c \parallel d$ conv. AIA = so //

19. $c \parallel d$ conv. corr = so //

20. $c \parallel d$ conv. SSI supp so //

21. $c \parallel d$ conv. AEA = so //

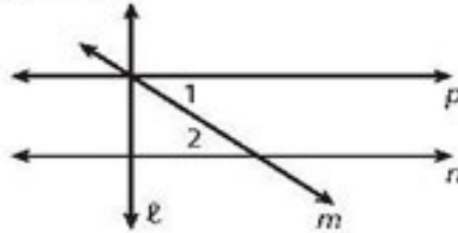


3-4 Perpendicular Lines

17. Write a two-column proof.

Given: $\angle 1 \cong \angle 2, \ell \perp n$

Prove: $\ell \perp p$



Statements	Reasons
1. $\angle 1 \cong \angle 2$; ℓ perpendicular to n	1. <u>Given</u>
2. <u>$p \parallel n$</u>	2. <u>IF $\angle 1 = \angle 2$ then \parallel lines</u>
3. ℓ perpendicular to p	3. <u>If one \parallel line is perpendicular, the other \parallel line is perpendicular (Perp. Transversal Theor.)</u>



3-5 Slopes of Lines

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

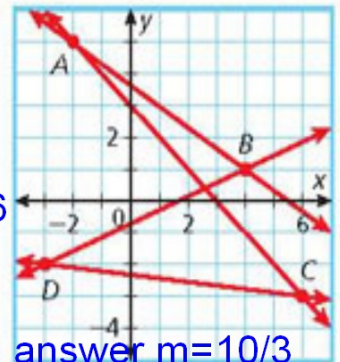
Use the slope formula to determine the slope of each line.

1. \overleftrightarrow{AC} 2. \overleftrightarrow{CD} 3. \overleftrightarrow{AB} 4. \overleftrightarrow{BD}
 $m = -1$ $m = -1/9$ $m = -2/3$ $m = 2/3$

Find the slope of the line through the given points.

5. $M(2, 3)$ and $N(0, 7)$ $m = -2$ 6. $F(-1, 4)$ and $G(5, -1)$ $m = -5/6$
7. $P(4, 0)$ and $Q(1, -3)$ $m = 1$ 8. $K(4, 2)$ and $L(-3, 2)$ $m = 0$

9. Sonia is walking 2.5 miles home from school. She leaves at 4:00 P.M., and gets home at 4:45 P.M. Graph the line that represents Sonia's distance from school at a given time. Find and interpret the slope of the line.



possible answer $m = 10/3$
Sonia's avg speed about 3.3

Graph each pair of lines and use their slopes to determine if they are parallel, perpendicular, or neither.

10. \overleftrightarrow{EF} and \overleftrightarrow{GH} for $E(-2, 3)$, $F(6, 1)$, $G(6, 4)$, and $H(2, 5)$ //
11. \overleftrightarrow{JK} and \overleftrightarrow{LM} for $J(4, 3)$, $K(5, -1)$, $L(-2, 4)$, and $M(3, -5)$ neither
12. \overleftrightarrow{NP} and \overleftrightarrow{QR} for $N(5, -3)$, $P(0, 4)$, $Q(-3, -2)$, and $R(4, 3)$ perpendicular
13. \overleftrightarrow{ST} and \overleftrightarrow{VW} for $S(0, 3)$, $T(0, 7)$, $V(2, 3)$, and $W(5, 3)$ perpendicular

#10 $EF = \frac{1-3}{6-(-2)} = \frac{-2}{8} = \frac{-1}{4}$ $GH = \frac{5-4}{2-6} = \frac{1}{-4}$ Same slope = parallel

3-6 Lines in the Coordinate Plane

Write the equation of each line in the given form.

14. the line through (3, 8) and (-3, 4) in slope-intercept form $y = 2/3x + 6$

15. the line through (-5, 4) with slope $2/3$ in point-slope form $y - 4 = 2/3(x + 5)$

16. the line with y-intercept 2 through the point (4, 1) in slope-intercept form $y = -1/4x + 2$

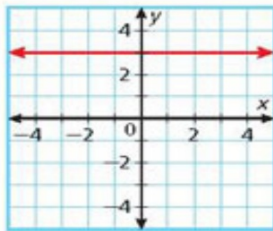
Graph each line.

17. $y = -2x + 5$

$m = -2$
 $b = 5$

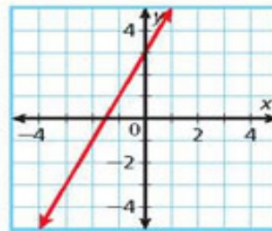
Write the equation of each line.

20.



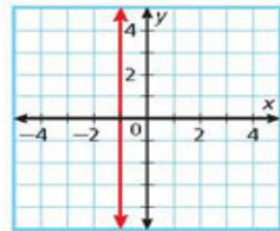
$y = 3$

21.



$y = 2x + 3$

22.



$x = -1$

Determine whether the lines are parallel, intersect, or coincide

23. $y = -2x + 5$

$y = -2x - 5$

parallel
 $m = -2$

24. $3x + 2y = 8$

$y = -3/2x + 4$

$y = -3/2x + 4$
parallel
 $m = -3/2$

25. $y = 4x - 5$

$3x + 4y = 7$

$y = -3/4x + 7/4$
neither

$m = 4$ and $m = -3/4$