

Test 2: Study Guide

Format of the test:

- 10 Marks Multiple Choice Questions
- 35 Marks Problem Solving

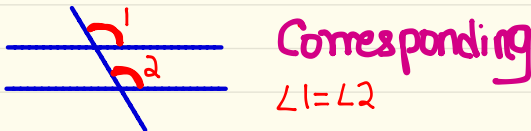
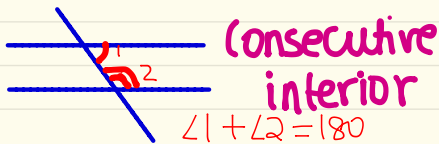
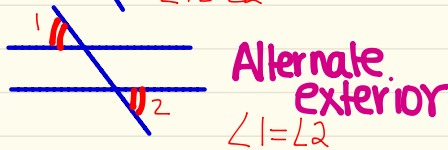
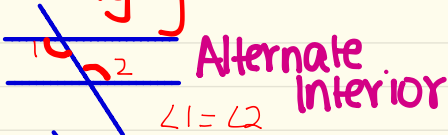
How to Study?

- 1 Use in class notes.
- 2 Worksheets
- 3 Quiz 2
- 4 Review: Textbook
Pg 181 - 183

Concepts you should know:

① Parallel Lines / Parallel Planes / Skew lines

② Identifying the following relationships:



Supplementary
also add to
 180°

Vertical Angles
 ~~$\angle 1 = \angle 2$~~

Parallel ↗↖
Perpendicular ←↕→

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

4) Eq. of lines: $y = mx + b$
↑ Slope ↖ y-intercept

5) Parallel lines → Same slope

Perpendicular Lines
↳ Negative Reciprocal

Good Luck



Keep Calm And Study On!!!

The Study Guide on Pg 181-182 ^{of the text book} is very good review for this test.

__ Ms. Valeska

Practice

Parallel Lines and Planes

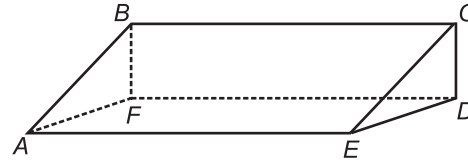
Describe each pair of segments in the prism as parallel, skew, or intersecting.

1. $\overline{AF}, \overline{BF}$ **Intersecting**

2. $\overline{AE}, \overline{FD}$ **Parallel**

3. $\overline{AB}, \overline{FD}$ **Skew**

5. $\overline{BC}, \overline{AE}$ **Parallel**



4. $\overline{EC}, \overline{BF}$ **Skew**

6. $\overline{BF}, \overline{AB}$ **Intersecting**

Name the parts of the cube shown at the right

7. six planes

Plane HGN, Plane GIK, Plane HJL, Plane MNL, Plane KLJ, Plane GHJ

8. all segments parallel to \overline{GI}

$\overline{HJ}, \overline{MK}, \overline{NL}$

9. all segments skew to \overline{MN}

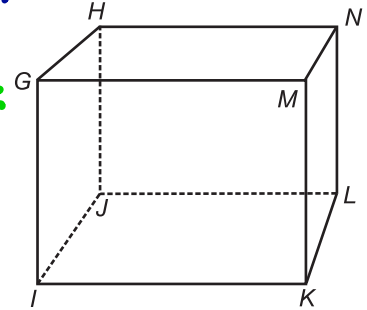
$\overline{JL}, \overline{IK}, \overline{GI}$ and \overline{HJ}

10. all segments parallel to \overline{IK}

$\overline{GM}, \overline{HN}$ and \overline{JL}

11. all segments skew to \overline{HJ}

$\overline{TK}, \overline{KL}, \overline{MN}, \overline{GM}$



Name the parts of the pyramid shown at the right.

12. all pairs of parallel segments

\overline{AD} and \overline{BC} \overline{AB} and \overline{DC}

13. all pairs of skew segments

\overline{EA} & \overline{DC} \overline{ED} & \overline{AB} \overline{EC} & \overline{AD} \overline{EB} & \overline{DC}

14. all planes parallel to plane EDC

NONE

15. all planes that intersect to form line BC

Plane EBC and Plane ADC

Draw and label a figure to illustrate each pair.

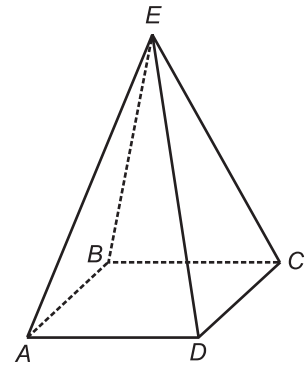
16. segments not parallel or skew



17. intersecting congruent segments



18. skew rays

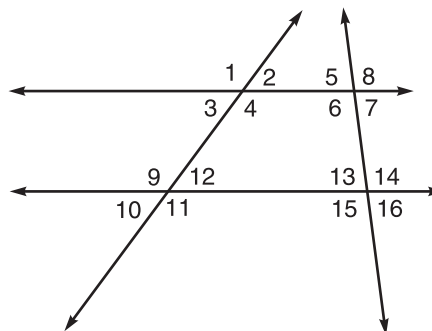


Practice

Parallel Lines and Transversals

Identify each pair of angles as alternate interior, alternate exterior, consecutive interior, or vertical.

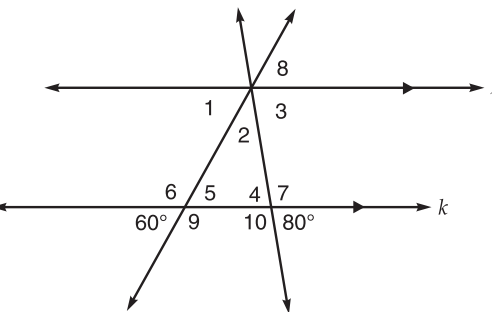
1. $\angle 9$ and $\angle 11$ *Vertical*
2. $\angle 3$ and $\angle 9$ *consecutive interior*
3. $\angle 3$ and $\angle 12$ *alternate interior*
4. $\angle 8$ and $\angle 6$ *vertical*
5. $\angle 8$ and $\angle 15$ *alternate exterior*
6. $\angle 4$ and $\angle 5$ *alt. interior*
7. $\angle 1$ and $\angle 7$ *alt. exterior*



Exercises 1-7

Find the measure of each angle. Give a reason for each answer.

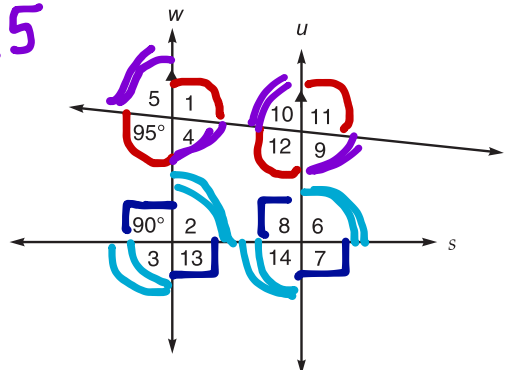
8. $\angle 5$ *60° (Vertical)*
9. $\angle 4$ *80° (Vertical)*
10. $\angle 6$ *$180 - 60 = 120^\circ$ (Supplementary)*
11. $\angle 1$ *60° (Alternate interior)*
12. $\angle 8$ *60° (Vertical $\angle 1$)*



Exercises 8-12

13. $\angle 10 = 85^\circ$
14. $\angle 1 = 95^\circ$
15. $\angle 2 = 90^\circ$
16. $\angle 10 = 85^\circ$
17. $\angle 11 = 95^\circ$
18. $\angle 8 = 90^\circ$
19. $\angle 6 = 90^\circ$
20. $\angle 5 = 85^\circ$
21. $\angle 4 = 85^\circ$

$$\begin{aligned} \angle 5 &= 180 - 95 \\ &= 85^\circ \\ \angle 3 &= 90^\circ \end{aligned}$$

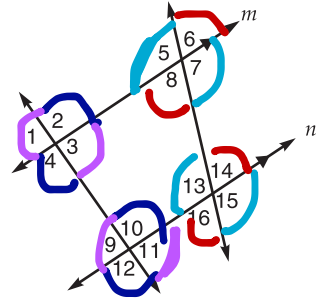


Exercises 13-21

Practice

Transversal and Corresponding Angles

In the figure, $m \parallel n$. Name all angles congruent to the given angle. Give a reason for each answer.



1. $\angle 13$ $\angle 15, \angle 7, \angle 5$

2. $\angle 12$ $\angle 10, \angle 4, \angle 2$

3. $\angle 4$ $\angle 2, \angle 10, \angle 12$

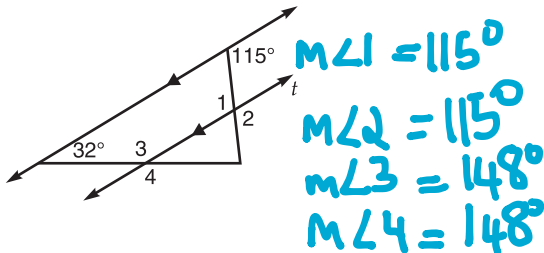
4. $\angle 16$ $\angle 14, \angle 8, \angle 6$

5. $\angle 9$ $\angle 11, \angle 1, \angle 3$

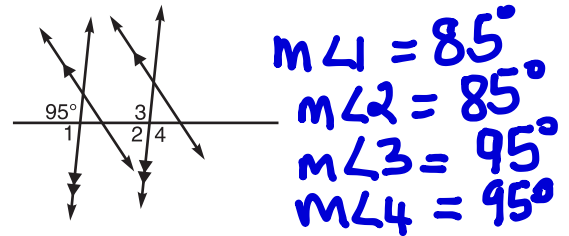
6. $\angle 15$ $\angle 13, \angle 7, \angle 5$

Find the measure of each numbered angle.

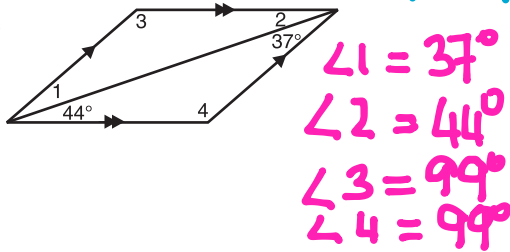
7.



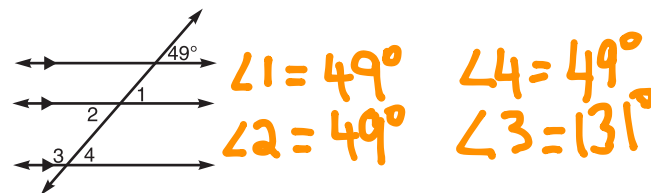
8.



9.



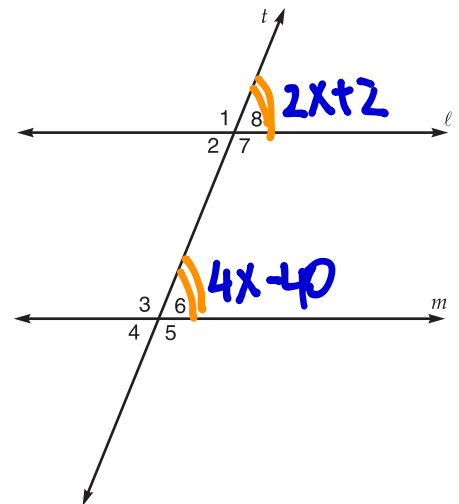
10.



11. If $m\angle 8 = 2x + 2$ and $m\angle 6 = 4x - 40$, find x , $m\angle 8$, and $m\angle 6$.

$$4x - 40 = 2x + 2$$

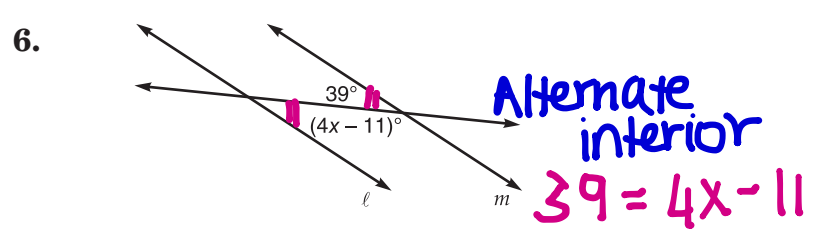
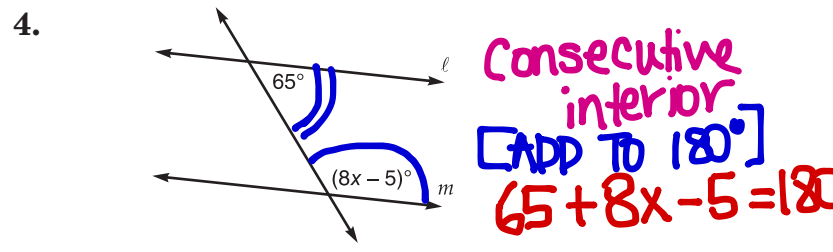
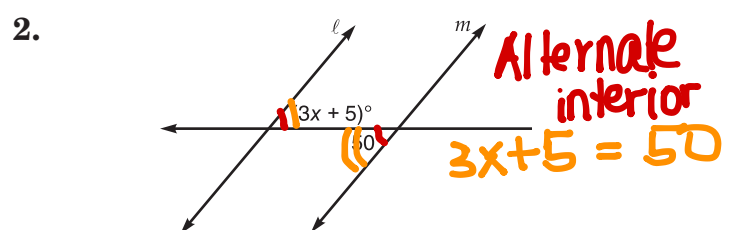
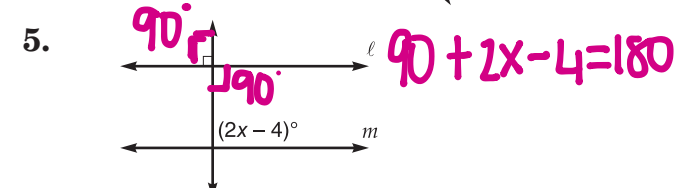
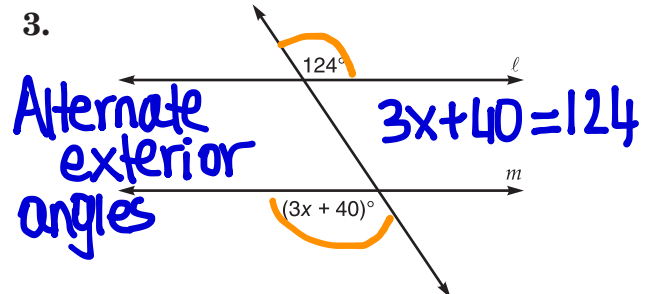
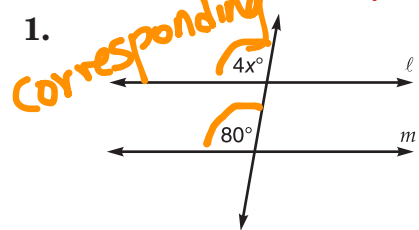
12. If $m\angle 1 = 6x - 2$ and $m\angle 5 = 4x + 38$, find x , $m\angle 1$, and $m\angle 5$.



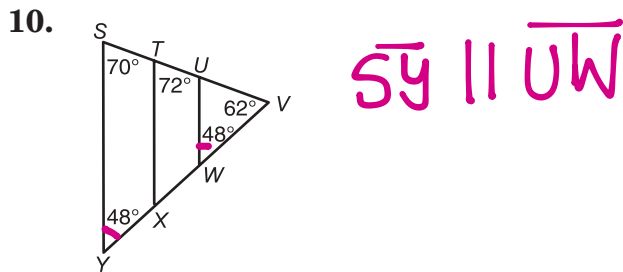
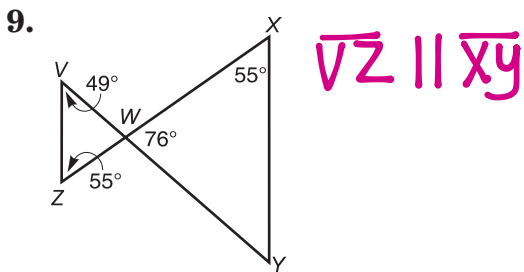
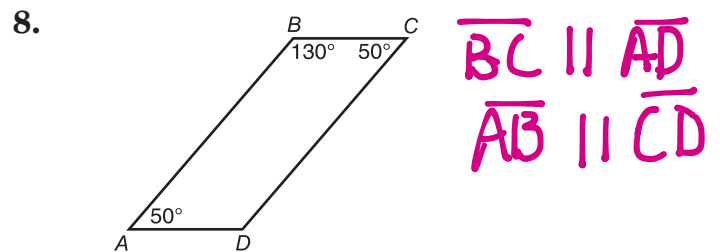
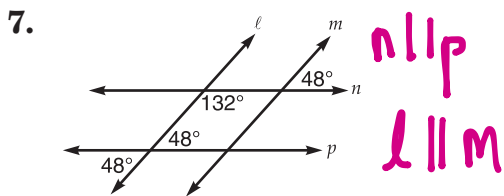
Practice

Proving Lines Parallel

Find x so that $\ell \parallel m$. $4x = 80$



Name the pairs of parallel lines or segments.



11. Refer to the figure at the right.

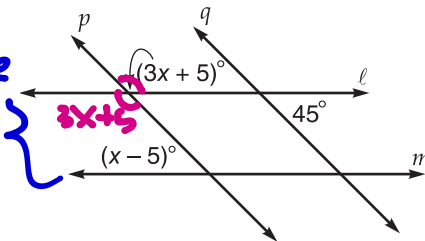
- Find x so that the $\ell \parallel m$.
- Using the value you found in part a, determine whether lines p and q are parallel.

$3x + 5 + x - 5 = 180$

$4x = 180$
 $\frac{4x}{4} = \frac{180}{4}$

$x = \boxed{}$

consecutive interior

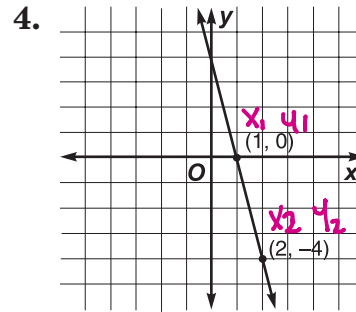
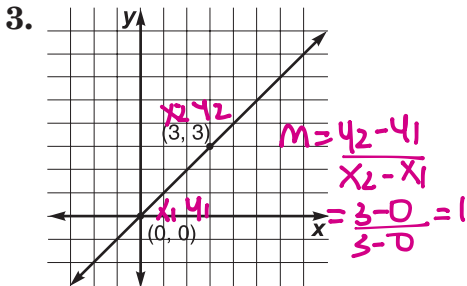
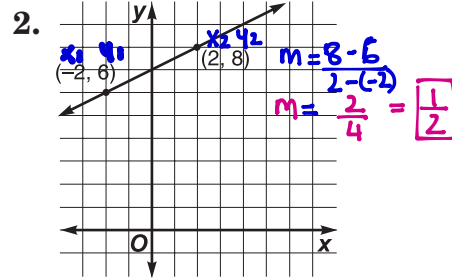
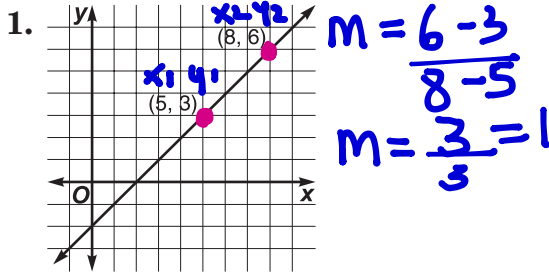


Practice

Slope

Find the slope of each line.

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



5. the line through (6, 5) and (5, 1)

6. the line through $(-1\frac{1}{2}, 3)$ and $(2\frac{1}{2}, 2)$

7. the line through (1.5, -1.5) and (2.5, -1)

8. the line through (8, 1) and (-8, 9)

Given each set of points, determine if \overline{AB} and \overline{CD} are parallel, perpendicular, or neither.

9. A(2, 2), B(0, 0), C(2, 0), D(0, -2)

$$m_{AB} = \frac{2-0}{2-0} = 1 \quad m_{CD} = \frac{-2-0}{0-2} = 1 \quad \left. \begin{array}{l} \\ \end{array} \right\} \text{Parallel}$$

10. A(0, -1), B(1, 0), C(-3, 2), D(3, -4)

$$m_{AB} = \frac{0-(-1)}{1-0} = 1 \quad m_{CD} = \frac{-4-2}{3-(-3)} = \frac{-6}{6} = -1 \quad \left. \begin{array}{l} \\ \end{array} \right\} \text{Perpendic.}$$

11. A(3, 2), B(3, 3), C(-1, 2), D(-3, 7)

$$m_{AB} = \frac{3-2}{3-3} = \frac{1}{0} \text{ Undefined} \quad m_{CD} = \frac{7-2}{-3-(-1)} = \frac{5}{-2} \quad \left. \begin{array}{l} \\ \end{array} \right\} \text{No.}$$

12. A(0, 4), B(0, -2), C(2, 0), D(-1, 0)

13. A(1, 3), B(3, -2), C(3, 5), D(5, 0) $m_{AB} = \frac{-2-3}{3-1} = \frac{-5}{2}$ $m_{CD} = \frac{0-5}{5-3} = \frac{-5}{2}$ Parallel

14. Find the slope of the line passing through points at (2, 2) and (-1, 0).

15. A(0, k) and B(1, -2) are two points on a line. If the slope of the line is -3, find the value of k.

Practice

Equations of Lines

Name the slope and y-intercept of the graph of each equation.

1. $y = 3x + 8$

$m=3$ $b=8$

2. $5x + y = 17$

5. $y = 6$ $m=0$ $b=6$

3. $3x - 2y = 8$

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

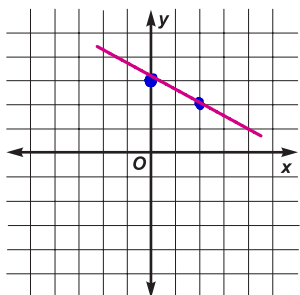
$m = \frac{3}{2}$ $b = -4$

4. $3y - x = 12$

6. $x = 2$ $m = \text{undefined}$ $b = \text{None}$

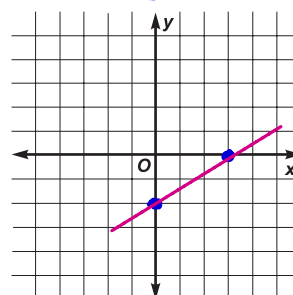
Graph each equation using the slope and y-intercept.

7. $y = -\frac{1}{2}x + 3$ m b

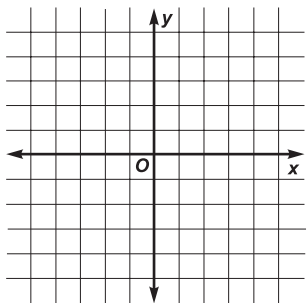


8. $3y + 6 = 2x$

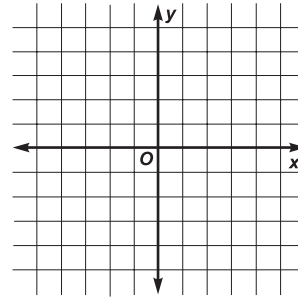
$3y = 2x - 6$
 $y = \frac{2}{3}x - 2$ m b



9. $y = \frac{1}{3}x + 2$



10. $y = \frac{1}{2}x + 1$



Write an equation of the line satisfying the given conditions.

11. slope = -2, goes through the point at (2, -4)

12. parallel to the graph of $y = -5x - 3$, passes through the point at (0, 2)

Parallel means same slope

$m = -5$ (0, 2)

$y = mx + b$
 $2 = -5(0) + b$
 $2 = b$

$y = -5x + 2$

13. perpendicular to the graph of $y = 2x - 5$, passes through the point at (10, -1)

negative reciprocal

Choose the correct graph of lines p, q, and r for each equation.

14. $y = \frac{1}{2}x + 2$

15. $y = -\frac{1}{2}x + 1$

16. $y = \frac{1}{2}x + 1$

$m = -\frac{1}{2}$ (10, -1)
 $y = mx + b$
 $-1 = -\frac{1}{2}(10) + b$
 $-1 = -5 + b$
 $+5$ $+5$
 $4 = b$
 $y = -\frac{1}{2}x + 4$

