Ch. 11 – Regular Polygons Board Problems

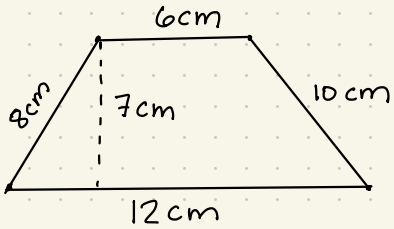
Define

1) Supplementary angles

2) Complimentary angles

Calculate Area & Perimeter

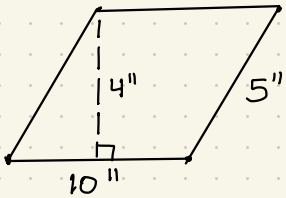
3)



Area: _____

Perimeter: _____

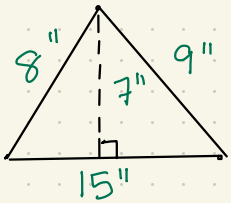
4)



Area: _____

Perimeter: _____

5)

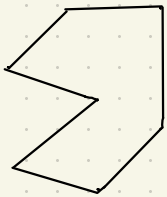


Area: _____

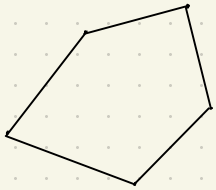
Perimeter: _____

Ch. 11

Regular Polygons



_____

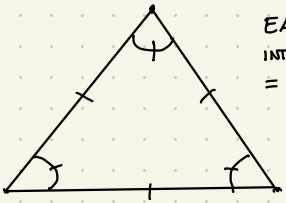


_____

Regular Polygon

ALL _____ AND _____ ARE _____.

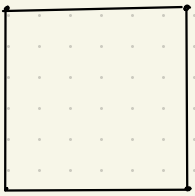
Sum of the interior angles of a triangle = _____.



EACH
INTERIOR ANGLE
= _____

Sum of interior angles = _____

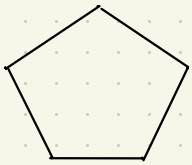
_____



EACH
INTERIOR ANGLE
= _____

Sum of interior angles = _____

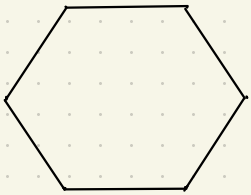
_____



EACH
INTERIOR ANGLE
= _____

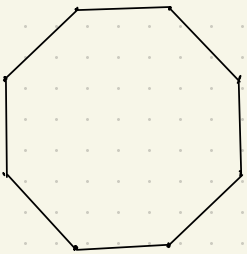
Sum of interior angles = _____

_____



EACH
INTERIOR ANGLE
= _____

Sum of interior angles = _____



EACH
INTERIOR ANGLE
= _____

Sum of interior angles = _____

_____

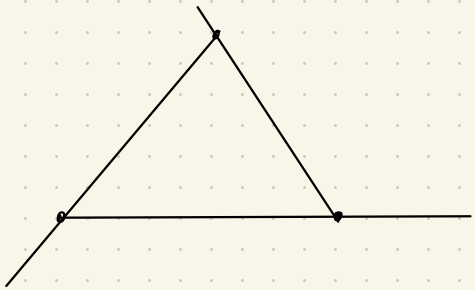
SHAPE	SIDE (N)	Triangles	Sum Interior	EACH ∠
TRIANGLE	3	1	180°	60°
SQUARE		2		
PENTAGON		3		
HEXAGON		4		
OCTAGON		6		
DECAGON		8		
DODECAGON		10		
ICOSAGON	20	18		

TOTAL interior degrees = $(n-2)*180^\circ$

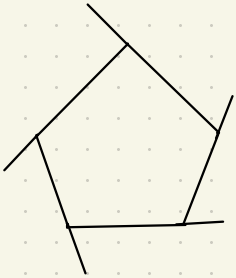
n = number SIDES

°measure of one interior ∠ = $\frac{(n-2)*180^\circ}{n}$ ←

EXTERIOR ANGLES



THE SUM OF ALL EXTERIOR ANGLES FOR ALL REGULAR POLYGONS IS: _____.



SUM OF EXTERIOR ANGLES = _____

NUMBER OF SIDES: _____

ONE EXTERIOR ANGLE: _____

ONE INTERIOR ANGLE: _____

EXTERIOR ANGLE + INTERIOR ANGLE = _____°

21 - SIDED FIGURE

① SUM OF ALL EXTERIOR ANGLES: _____

② ONE EXTERIOR ANGLE: _____

③ ONE INTERIOR ANGLE: _____

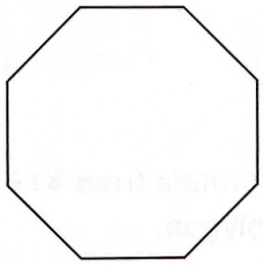
④ SUM OF INTERIOR ANGLES: _____

LESSON PRACTICE

Match each polygon with its number of sides.

1. hexagon	a. 10
2. pentagon	b. 4
3. square	c. 6
4. dodecagon	d. 5
5. octagon	e. 12
6. decagon	f. 8

For #7–12, assume the given polygon is regular.



7. How many diagonals can be drawn from one vertex?

8. How many triangles are formed?

9. How many total degrees in the polygon?

10. How many degrees in each interior angle?

11. What is the measure of each exterior angle?

12. What is the total measure of the exterior angles?

Answer the questions.

13. Give the formula for finding the sum of the interior degrees in a regular polygon.

14. If the measure of an exterior angle of a regular polygon is 30°, what is the name of the polygon? How did you determine this?

15. If you can draw eight triangles in a polygon, what kind of polygon do you have?

16. Using the formula from #13, find the total degrees of the interior a 15-sided polygon.

17. Find the measure of each interior angle in #16.

18. Check your answer to #17 using exterior angles.

LESSON PRACTICE

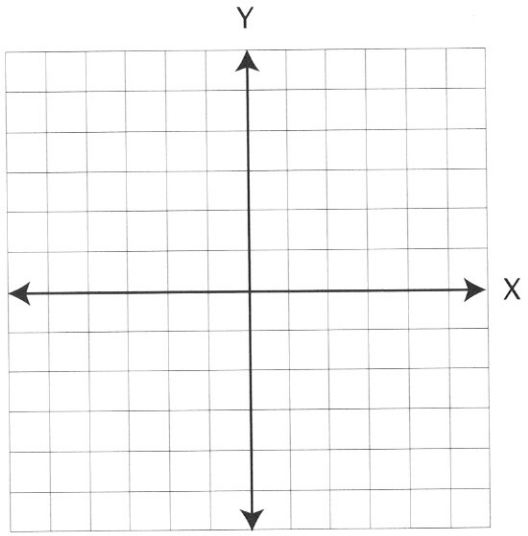
Follow the directions for each graph.

1. Plot the points (-4, 3) and (4, 1).

2. Make a right triangle and determine the slope.

3. Extend the line and estimate the Y-intercept.

4. Describe the line with the slope-intercept form.



5. Which of the following lines is perpendicular to the line you drew?

   A. $2Y = 8X - 10$

   B. $Y = -1/4\ X - 2$

   C. $4Y = -X + 8$

6. Draw a line that is perpendicular to the original line while passing through the point (-2, -4).

7. Describe the new line with the slope-intercept form.

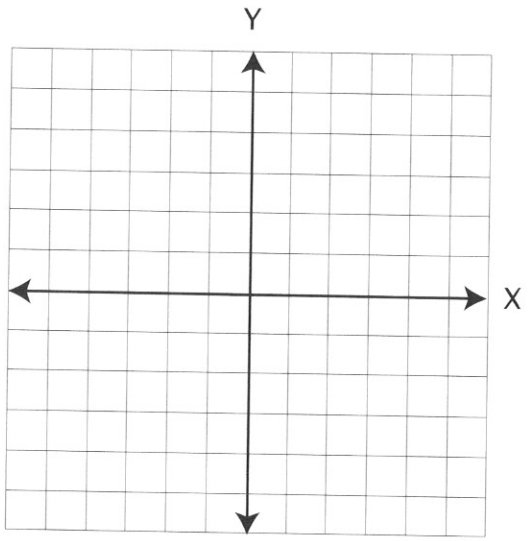
8. Describe the new line using the standard form of the equation of a line.

9. Plot the points (2, 3) and (-2, -1).

10. Make a right triangle and determine the slope.

11. Extend the line and estimate the Y-intercept.

12. Describe the line with the slope-intercept form.



13. Which of the following lines is perpendicular to the line you drew?

    A. $Y = -X + 1$

    B. $Y = 1/2\ X - 1$

    C. $Y = -1/2\ X + 2$

14. Draw a line that is perpendicular to the original line while passing through the point (1, -5).

15. Describe the new line with the slope-intercept form.

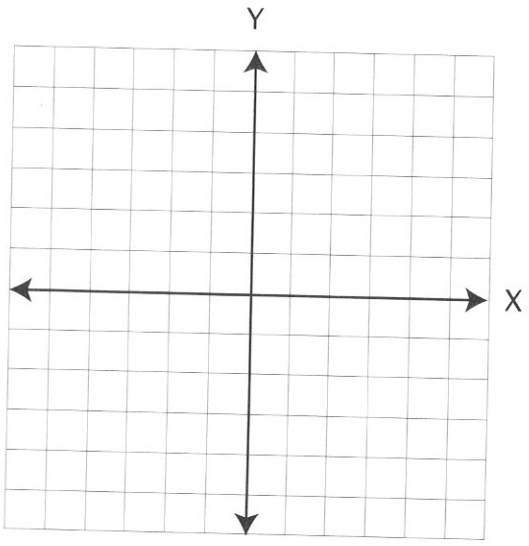
16. Describe the new line using the standard form of the equation of a line.

1. Plot the points (-3, -5) and (3, -3).

2. Make a right triangle and determine the slope.

3. Estimate the intercept by extending the line until it intercepts the Y-axis.

4. Describe the line using the slope-intercept form, and then give in the standard form of the equation of a line.



5. Which of the following lines is perpendicular to the line in #4?

   A. $Y = -1/3\,X + 3$

   B. $Y = -3X - 1$

   C. $4Y = -12X - 4$

6. Draw a line that is perpendicular to the line given in #4 while passing through the point (3, -3).

7. Describe the perpendicular line with the slope-intercept form, and then with the standard form of the equation.

8. Draw a line that is perpendicular to the line given in #4 while passing through the point (0, -4).

9. Describe the new line with the slope-intercept form, then with the standard form of the equation of a line.

10. What do you notice about the slopes of the lines you drew for #6 and #8?

Simplify and solve for the unknown.

11. $6X - X + 3 = 4X + 7$

12. $-2X - X + 12 = X - 12$

13. $|-(3 + 7)| - 4^2 + (-4)^2 = 2R$

14. $-3\frac{1}{2}Y + \frac{2}{9} = -\frac{4}{3}$

15. 60% of the shoe store's receipts go towards paying for the shoes (cost of goods sold). What percent of the receipts is profit? (Hint: Remember that cost plus profit equals 100%.)

16. If the first-quarter sales totaled $12,900, what is the amount of profit?

17. Self-employment tax is 15.3% of the profit. How much do you, the proprietor, have to pay?

18. If two bits is worth 25¢, how much is one bit worth?

19. How much is eight bits worth?

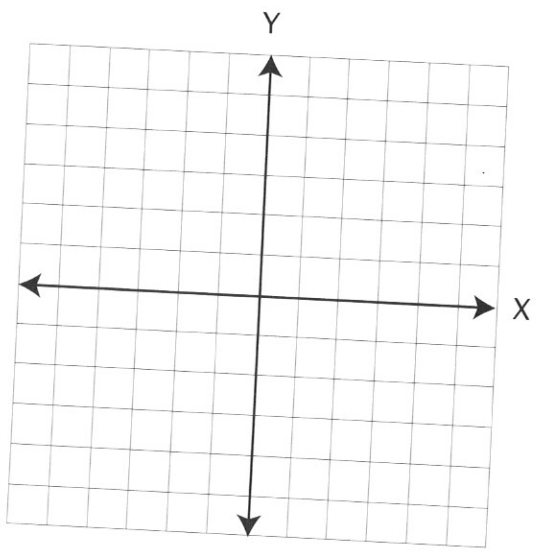
20. At the beginning of the year, Devan had $3.00. Each week thereafter, his uncle gave him $5.00. Write an equation showing how his money increased.

1. Plot the points (2, -3) and (-1, 3).

2. Make a right triangle and determine the slope.

3. Estimate the intercept by extending the line until it intercepts the Y-axis.

4. Describe the line with the slope-intercept form, and then give in the standard form.



5. Which of the following lines is perpendicular to the line in #4?

   A. $Y = 1/2\ X - 1$

   B. $Y = 5/2\ X + 2$

   C. $3Y = 6X - 3$

6. Draw a line that is perpendicular to the line given in #4 while passing through the point (4, 1).

7. Describe the perpendicular line with the slope-intercept form, and then with the standard form of the equation.

8. Draw a line perpendicular to the line given in #4 passing through the point (2, 4).

9. Describe the new line with the slope-intercept form, and then with the standard form of the equation of a line.

10. What do you notice about the slopes of the lines you drew for #6 and #8?

Simplify and solve for the unknown.

11. $2X + 2 - X + 2X = 3X - 3 + 10 - X$

12. $3Y - 1 + 2Y - 1 - 4Y = 2Y + 3 + Y + 1$

13. $-(6 + 7)^2 + (10 + 5)^2 = 5M$

14. $-1\frac{2}{3} = -2\frac{1}{4} + 1\frac{1}{5}A$

15. 55% of the shoe store's receipts go towards paying for the shoes (cost of goods sold). What percent of the receipts is profit?

16. If the second-quarter sales totaled $9,645, what is the amount of profit?

17. Self-employment tax is 15.3% of the profit. How much do you, the proprietor, have to pay?

18. If two bits is worth 25¢, how many bits are in $2.50?

19. How much is 100 bits worth?

20. At the beginning of the month, the vine measured five feet. Thereafter, it grew one foot per week. Write an equation describing the growth of the vine.