

Geometry 1

 This Slideshow was developed to accompany the textbook

➤Larson Geometry

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 Some examples and diagrams are taken from the textbook.
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1.1 Identify Points, Lines, and Planes

• Give two other names for \overleftrightarrow{BD}

- Give another name for plane ${\mathcal T}$
- Name three collinear points
- Name four coplanar points



DB, m Plane ABE A, B, C A, B, C, E







RP QP, QR, QT, QS QT and QS; QP and QR

1.1 Identify Points, Lines, and Planes The intersection of two planes is a line.

1.1 Identify Points, Lines, and Planes

- Sketch a plane and two intersecting lines that intersect the plane at separate points.
- Sketch a plane and two intersecting lines that do not intersect the plane.
- Sketch a plane and two intersecting lines that lie in the plane.

1.1 Identify Points, Lines, and Planes

• 5 #1, 4-38 even, 44-58 even = 27 total



1.1 Grading and Quiz

- <u>1.1 Answers</u>
- <u>1.1 Homework Quiz</u>



1.2 Use Segment and Congruence

- Postulate Rule that is accepted without proof
- Theorem Rule that is proven

Ruler Postulate

Any line can be turned into a number line





AB = 3 - (-1) = 4





CD + DE = CE CD + 17 = 42 CD = 25



XY = 3 - (-5) = 8



1.2 Use Segment and Congruence

• 12 #4-36 even, 37-45 all = 26 total



1.2 Grading and Quiz

- <u>1.2 Answers</u>
- <u>1.2 Homework Quiz</u>







PQ = ½ PN 22.6 = ½ PN PN = 45.2 5x-2 = 3x+8 2x-2 = 8 2x = 10 x = 5 ST = 3(5) + 8 = 23



((7+-5)/2, (-2+-6)/2) = (1, -4)

1.3 Use Midpoint and Distance Formulas

The midpoint of AB is M(5, 8). One endpoint is A(2, -3). Find the coordinates of endpoint B.

(5, 8) = ((x+2)/2, (y+-3)/2)x-coords: $5 = (x+2)/2 \rightarrow 10 = x+2 \rightarrow x = 8$ y-coords: $8 = (y-3)/2 \rightarrow 16 = y-3 \rightarrow y = 19$ (8, 19)



 $PQ = v((-4 - 2)^{2} + (8-5)^{2})$ $PQ = v((-6)^{2} + (3)^{2})$ PQ = v(36 + 9) $PQ = v(45 = 3v5 \approx 6.71$

1.3 Grading and Quiz

- <u>1.3 Answers</u>
- 1.3 Homework Quiz











∠DEC = 90 right ∠DEA = 180 straight ∠CEB = 25 acute ∠DEB = 115 obtuse



 $\angle PQR$, $\angle PQS$, $\angle RQS$; $\angle PQS$ is a right angle.



2x-9 + 3x+6 = 72 5x-3=72 5x = 75 x = 15

 $m \angle RSP = 2(15) - 9 = 21$ $m \angle PST = 3(15) + 6 = 51$



1.4 Measure and Classify Angles

- Identify all pairs of congruent angles in the diagram.
- In the diagram, m∠PQR = 130, m∠QRS = 84, and m∠TSR = 121. Find the other angle measures in the diagram.

 $\angle T \cong \angle S$, $\angle P \cong \angle R$

m∠PTS = 121, m∠QPT = 84



1.4 Grading and Quiz

- <u>1.4 Answers</u>
- <u>1.4 Homework Quiz</u>







Both the pairs are supplementary

1.5 Describe Angle Pair Relationships • In the figure, name a pair of • complementary angles, • supplementary angles, • adjacent angles. • Are \angle KGH and \angle LKG adjacent angles? • Are \angle FGK and \angle FGH adjacent angles? Explain.

Complementary: \angle FGK and \angle GKL Supplementary: \angle HGK and \angle GKL Adjacent: \angle FGK and HGK

No, they do not have a common vertex No, they are inside of each other

- Given that ∠1 is a complement of ∠2 and m∠2 = 8°, find m∠1.
- Given that ∠3 is a supplement of ∠4 and m∠3 = 117°, find m∠4.

 $8 + x = 90 \rightarrow x = 82$ 117 + y = 180 = 63

 ∠LMN and ∠PQR are complementary angles. Find the measures of the angles if m∠LMN = (4x – 2)° and m∠PQR = (9x + 1)°.

 $(4x - 2) + (9x + 1) = 90 \rightarrow 13x - 1 = 90 \rightarrow 13x = 91 \rightarrow x = 7$ m/LMN = 4(7) - 2 = 26 m/PQR = 9(7) + 1 = 64





- Do any of the numbered angles in the diagram below form a linear pair?
- Which angles are vertical angles?



No, no 2 of them form straight lines

 $\angle 1$ and $\angle 4,$ $\angle 2$ and $\angle 5,$ $\angle 3$ and $\angle 6$

 Two angles form a linear pair. The measure of one angle is 3 times the measure of the other.
 Find the measure of each angle.

 $x + 3x = 180 \rightarrow 4x = 180 \rightarrow x = 45 \rightarrow angles are 45 and 135$

- Things you can assume in diagrams.
 - ➢ Points are coplanar
 - Intersections
 - Lines are straight
 - Betweenness
- Things you cannot assume in diagrams
 - Congruence unless stated
 - Right angles unless stated

- 38 #4-28 even, 32-44 even, 54, 58, 60, 62 = 24 total
- Extra Credit 41 #2, 6



1.5 Grading and Quiz

- <u>1.5 Answers</u>
- 1.5 Homework Quiz





You get a Polly gone







1.6 Classify Polygons			
	Number of sides	Type of Polygon	
	3	Triangle	
	4	Quadrilateral	
	5	Pentagon	D D
	6	Hexagon	
	7	Heptagon	5
	8	Octagon	10
	9	Nonagon	
	10	Decagon	
	12	Dodecagon	
	13	13-gon	7
	n	n-gon	

1.6 Classify Polygons

- Sketch an example of a convex heptagon.
- Sketch an example of a concave heptagon.
- Classify the polygon shown.



Regular quadrilateral

1.6 Classify Polygons

 The Pentagon Building is a regular pentagon. If two of the angles are (2x – 14)° and (3x – 75)°.
 Find the measure of each angle.



44 #4-36 even, 40, 44-54 even
 = 24 total

2x-14 = 3x-75-14 = x-75 61 = x Angles are 2(61) - 14 = 108

1.6 Grading and Quiz

- <u>1.6 Answers</u>
- <u>1.6 Homework Quiz</u>









Rectangle: A = 13(5.7) = 74.1 m²; P = 2(13) + 2(5.7) = 37.4 m Square: A = $(1.6)^2$ = 2.6 cm²; P = 4(1.6) = 6.4 cm Circle: A = $\pi(2)^2$ = 4 π = 12.6 yd²; P = 2 π 2 = 4 π = 12.6 yd

1.7 Find Perimeter, Circumference, and Area Describe how to find the height from F to EG in the triangle. Find the perimeter and area of the triangle. What if each side of the triangle were twice as long; would it cover twice as much area?

The height is perpendicular to the base, so it hits EG at (1, 3). Distance from (1, 3) to (7, 3) = 6

Perimeter: find the lengths of each side EG = 4 FG = $V((7-1)^2 + (3-2)^2) = V(36 + 1) = V37 = 6.08$ EF = $V((7-1)^2 + (3-6)^2) = V(36 + 9) = V45 = 6.71$ P = 4 + 6.08 + 6.71 = 16.79

Area: ½ (4)(6) = 12

No, the area would be four times as big

1.7 Find Perimeter, Circumference, and Area The area of a triangle is 64 square meters, and its height is 16 meters. Find the length of its base. 52 #2-42 even, 46, 48-52 all = 27 total Extra Credit 56 #2, 6

A = ½ bh 64 = ½ b (16) 64 = 8b b = 8

1.7 Grading and Quiz

- <u>1.7 Answers</u>
- <u>1.7 Homework Quiz</u>



1.Review

CHAPTER TEST





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