GED Mathematics

Part IX: Geometry

Lesson 1 Worksheet: Common Geometric Shapes

Name each angle below: acute, right, obtuse, straight, or reflex.

1. ________________

![28° angle]

2. ________________

![Right angle]

3. ________________

![180° angle]

4. ________________

![310° angle]

5. ________________

![88° angle]

6. ________________

![210° angle]
Lesson 1 Worksheet: Common Geometric Shapes (Key)

Name each angle below: acute, right, obtuse, straight, or reflex.

1. Acute
   ![28° angle]

2. Right
   ![Right angle]

3. Straight
   ![180° angle]

4. Reflex
   ![310° angle]

5. Acute
   ![88° angle]

6. Obtuse
   ![Obtuse angle]

7. Straight
   ![210° angle]

8. Reflex
   ![Reflex angle]
Lesson 2 Worksheet: Angle Relationships

Find the value of each angle indicated below.

1. \(<\text{ABD} = \)

2. \(<\text{TRS} = \)

3. \(<\text{XYO} = \)

4. \(<\text{MNP} = \)

5. \(<\text{DBC} = \)

6. \(<\text{OPT} = \)

7. \(<\text{b} = \)
   \(<\text{c} = \)
   \(<\text{d} = \)

8. \(<\text{1} = \)
   \(<\text{3} = \)
   \(<\text{4} = \)
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Lesson 2 Worksheet: Angle Relationships (Key)

Find the value of each angle indicated below.

1. $\angle ABD = 60^\circ$

2. $\angle TRS = 50^\circ$

3. $\angle XYO = 32^\circ$

4. $\angle MNP = 130^\circ$

5. $\angle DBC = 143^\circ$

6. $\angle OPT = 40^\circ$

7. $\angle b = 140^\circ$

   $\angle c = 40^\circ$

   $\angle d = 140^\circ$

8. $\angle 1 = 75^\circ$

   $\angle 3 = 75^\circ$

   $\angle 4 = 105^\circ$
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Lesson 3 Worksheet: Working with Triangles

As a first step in solving each word problem below, draw the triangle that is described and label any angle whose value is given.

1. The vertex angle of an isosceles triangle is 80°. What is the value of each base angle?

2. In a scalene right triangle, one is equal to 35°. How large is the second acute angle?

3. Two of the angles in a scalene triangle measure 28° and 57°. What does the third angle measure?

4. If the three sides of triangle XYZ are equal, what is the value of each angle?

5. If a triangle figure is in the shape of an isosceles right triangle, what is the value of each base angle?

6. A billiards ball rack is shaped like a triangle with three equal sides. At what acute angle does each pair of sides meet?
Lesson 3 Worksheet: Working with Triangles (Key)

As a first step in solving each word problem below, draw the triangle that is described and label any angle whose value is given.

1. The vertex angle of an isosceles triangle is 80°. What is the value of each base angle?
   50°

2. In a scalene right triangle, one is equal to 35°. How large is the second acute angle?
   55°

3. Two of the angles in a scalene triangle measure 28° and 57°. What does the third angle measure?
   95°

4. If the three sides of triangle XYZ are equal, what is the value of each angle?
   60°

5. If a triangle figure is in the shape of an isosceles right triangle, what is the value of each base angle?
   45°

6. A billiards ball rack is shaped like a triangle with three equal sides. At what acute angle does each pair of sides meet?
   60°
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Lesson 4 Worksheet: Similarity and Congruence

Solve each problem.

1. Is \( \triangle ABC \) similar to \( \triangle DEF \)?

2. Are the two rectangles similar?

3. For each pair of triangles decide if the two triangles are congruent. If they are congruent, tell which requirement (SAS, ASA, or SSS) the triangles satisfy. If they are not congruent, tell which requirement the triangles fail to satisfy.
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Lesson 4 Worksheet: Similarity and Congruence (Key)

Solve each problem.

1. Is \( \triangle ABC \) similar to \( \triangle DEF \)?

   Yes

2. Are the two rectangles similar?

   No

3. For each pair of triangles decide if the two triangles are congruent. If they are congruent, tell which requirement (SAS, ASA, or SSS) the triangles satisfy. If they are not congruent, tell which requirement the triangles fail to satisfy.

   Yes (SAS)
4. 12 in.  
   \[ \text{60°} \]  
   Yes (SAS)

5. 3 in.  
   4 in.  
   4 in.  
   4 in.  
   3 in.  
   3 in.  
   No

In the triangle on the left one leg is 4 inches. 
In the triangle on the right the hypotenuse is 4 inches. Because corresponding sides are not equal, the conditions fail to satisfy the SAS requirement.
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Lesson 5 Worksheet: Perimeter (Circumference) and Area

Find the perimeter.

1. A baseball diamond is a square with distances between the bases as shown. How far will the batter run if he hits a home run?

2. Find in feet, the amount of framing needed to frame a picture 8 1/2 in. by 11 in.

3. Find the perimeter of the ice-skating rink with the given dimensions. Think of the rink as made-up of a rectangle and 2 half-circles.

Find the area.

4. 

5. 

6. 

7. How many square yards of carpet are needed for a room 30 feet by 15 feet? (1 sq. yd. = 9 sq. ft)
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Lesson 5 Worksheet: Perimeter (Circumference) and Area (Key)

Find the perimeter.

1. A baseball diamond is a square with distances between the bases as shown. How far will the batter run if he hits a home run?
   
   \[ 360 \text{ ft.} \]

2. Find in feet, the amount of framing needed to frame a picture 8 1/2 in. by 11 in.
   
   \[ 3 1/4 \text{ ft.} \]

3. Find the perimeter of the ice-skating rink with the given dimensions. Think of the rink as made-up of a rectangle and 2 half-circles.
   
   \[ 97.68 \text{ m} \]

Find the area.

4.  
   
   \[ \text{14.3 m} \] \[ \text{9 m} \]  
   
   \[ 128.7 \text{ m}^2. \]

5.  
   
   \[ \text{10 in.} \]  
   
   \[ 75.09 \text{ sq. in.} \]

6.  
   
   \[ \text{1/2 in.} \]  
   
   \[ 11/14 \text{ sq. in.} \]

7. How many square yards of carpet are needed for a room 30 feet by 15 feet? (1 sq. yd. = 9 sq. ft)
   
   \[ 50 \text{ sq. yds.} \]
Lesson 6 Worksheet: Perimeter (Circumference) and Area

Find the volume.

1. What is the volume of the container at right?

2. Find the volume of a freezer chest that is 6 feet long, 4 feet deep, and 3 feet wide.

3. How many gallons of water will fill a fish tank that is 18 inches by 12 inches by 48 inches? (There are 231 cubic inches per gallon.) Round your answer to the nearest gallon.

4. How much topsoil is needed to cover a garden 25 feet by 40 feet to a depth of 6 inches?

5. The edge of a small cube is 2 inches, and the edge of a larger cube is 4 inches. What is the ratio of the volume of the small cube to the volume of the larger cube?
Lesson 6 Worksheet: Perimeter (Circumference) and Area (Key)

Find the volume.

1. What is the volume of the container at right?

25,872 cu. ft.

2. Find the volume of a freezer chest that is 6 feet long, 4 feet deep, and 3 feet wide.

72 cu. ft.

3. How many gallons of water will fill a fish tank that is 18 inches by 12 inches by 48 inches? (There are 231 cubic inches per gallon.) Round your answer to the nearest gallon.

45 gallons

4. How much topsoil is needed to cover a garden 25 feet by 40 feet to a depth of 6 inches?

500 cu. ft.

5. The edge of a small cube is 2 inches, and the edge of a larger cube is 4 inches. What is the ratio of the volume of the small cube to the volume of the larger cube?