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| **9.1 Triangles and Special Quadrilaterals** |

 **Learning Objective:** Students will develop and apply the formulas for the area and perimeter of triangles and special quadrilaterals.



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Quick Write:

Describe how to find the area of a rectangle: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Describe how to find the perimeter of a rectangle: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| Find the area:  | Find the area: |
| **Find the perimeter of the rectangle with an area of 100 cm2.Height = \_\_\_\_\_\_\_\_\_\_****Perimeter = \_\_\_\_\_\_\_\_\_\_\_\_**25 cm | **Find the base of the parallelogram in which *h* = 56 yd and *A* = 28 yd2.** |

**Find the perimeter of a square with an Area of 225 m2.**

Side length = \_\_\_\_\_\_\_\_\_\_

Perimeter = \_\_\_\_\_\_\_\_\_\_\_\_



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| **Find the area of a trapezoid in which *b*1 = 8 in.,** ***b*2 = 5 in., and *h* = 6.2 in.** | **Find the area of the triangle**  |
| **Find *b*2 of the trapezoid, in which *A* = 231 mm2.** | **Find the base of the triangle, in which *A* = (15*x*2) cm2.**  |
| **Find the area of the triangle**  | Hershey is trying to decide on the best shape for a new candy bar. The prototype is a square bar with sides measuring 4 cm. The research team has decided to try a rectangular shaped bar with an equivalent area to the original prototype. If the width of the rectangle is 2 cm, what will be the length of the new candy bar? |
| You want to put wallpaper on 1 wall of your bedroom that is 14’ x 9’. If each roll costs $ 6.55 and will cover 56 ft2, how much will it cost to do the wall? How much wallpaper will you have left over? |  |

**Quickwrite:** How is the area of the trapezoid related to the area of the total figure created?
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
HW: WorkSheet

The diagonals of a rhombus or kite are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and the diagonals of a rhombus \_\_\_\_\_\_\_\_\_\_\_\_\_each other.



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| **Find *d*2 of a kite in which *d*1 = 14 in. and** ***A* = 238 in2.** | Find the area of the Rhombus: |
| Find the area of the Kite: |  |
| **Find *d*2 of a rhombus in which *d*1 = 3*x* m and *A* = 12*xy* m2.** | **In the tangram, find the perimeter and area of the large green triangle. Each grid square has a side length of 1 cm.**This one |

HW: WorkSheet

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| **9.2 Circles and Regular Polygons** |

**Learning Goal**: Students will develop and apply the formulas for the area and circumference of a circle and a regular polygon.

A **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**is the locus of points in a plane that are a fixed distance from a point called the**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** ****. A circle is named by the symbol 🞊 and its center. **🞊*A*** has radius ***r*** = ***AB*** and diameter ***d*** = ***CD***.

The irrational number *π* is defined as the ratio of the circumference *C* to the diameter *d*, or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Solving for *C* gives the formula *C=\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*. Also *d* = 2*r*, so *C* = \_\_\_\_\_\_\_\_.

You can use the circumference of a circle to find its area. Divide the circle and rearrange the pieces to make a shape that resembles a parallelogram.

 

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| Find the area of 🞊*K* in terms of *π.* | Find the area of 🞊*D* in terms of *π* |
| Find the circumference of 🞊*M* if the area is 25 *x*2*π* ft2 | Find the radius of 🞊*J* if the circumference is (65*x* + 14)*π* m. |
| **Find the area of 🞊*A* in terms of *π* in which** ***C* = (4*x* – 6)*π* m.** | **A pizza-making kit contains three circular baking stones with diameters 24 cm, 36 cm, and 48 cm. Find the area of each stone. Round to the nearest tenth.**  |

The **center of a regular polygon** is equidistant from the vertices. The **\_\_\_\_\_\_\_\_\_\_\_\_\_\_**is the distance from the center to a side. A **central angle of a regular polygon** has its vertex at the center, and its sides pass through consecutive vertices. Each central angle measure of a regular *n*-gon is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Regular pentagon *DEFGH* has a center *C*, apothem *BC*, and central angle ∠*DCE*.



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| **Find the area of regular heptagon with side length 2 ft to the nearest tenth.** | http://3219a2.medialib.glogster.com/media/cc/cc521dcab6453e6b2dc186e16f97284d78cd36c6052d800f00d14526b4e1bc76/green-gooon.png**Find the area of a regular dodecagon with side length 5 cm to the nearest tenth.** |
| **Find the area of a regular pentagon with side length 6 cm to the nearest tenth.**  | http://3.bp.blogspot.com/-DkevM6X7UE8/UJnPQW_m1II/AAAAAAAALWs/TtVh-6okFfw/s1600/400px-Regular_hexagon.svg.png**Find the area of a regular hexagon with side length 8 cm to the nearest tenth.** |
| **Find the area of a regular octagon with a side length of 4 cm.**http://www.math-salamanders.com/images/shapes-for-kids-regular-octagon-ns-bw.gif |  |

HW: Worksheet Day 1
HW: Worksheet Day 2

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| **9.3 Composite Figures** |

**Learning Goal**: Students will use the Area Addition Postulate to find the areas of composite figures and estimate the areas of irregular shapes.

A is made up of simple shapes, such as triangles, rectangles, trapezoids, and circles. To find the area of a composite figure, find the areas of the simple shapes and then use the Area Addition Postulate.

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| Find the shaded area. Round to the nearest tenth, if necessary. | **Find the shaded area. Round to the nearest tenth, if necessary.** |
| Find the shaded area. Round to the nearest tenth, if necessary. | **Find the shaded area. Round to the nearest tenth, if necessary.** |
| **A company receives an order for 65 pieces of fabric in the given shape. Each piece is to be dyed red. To dye 6 in2 of fabric, 2 oz of dye is needed. How much dye is needed for the entire order?** |  |
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HW: Worksheet

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| **9.4 Area and Perimeter in the Coordinate Plane** |

**Learning Goal**: Students will find the perimeters and areas of figures in a coordinate plane.

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| Draw and classify the polygon with vertices *E*(–1, –1), *F*(2, –2), *G*(–1, –4), and *H*(–4, –3). Find the perimeter and area of the polygon. | Draw and classify the polygon with vertices *H*(–3, 4), *J*(2, 6), *K*(2, 1), and *L*(–3, –1). Find the perimeter and area of the polygon. |
| Find the area of the polygon with vertices *A*(–4, 1), *B*(2, 4), *C*(4, 1), and *D*(–2, –2). | **Find the area of the polygon with vertices *K*(–2, 4), *L*(6, –2), *M*(4, –4), and *N*(–6, –2).**ae |
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HW: Page 620, 10-22

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| **9.5 Dimensional Change** |

**Learning Goal**: Students will describe the effect on perimeter and area when one or more dimensions of a figure are changed and apply the relationship between perimeter and area in problem solving.

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| Describe the effect of each change on the area of the given figure:  | **The diagonal *SU* of the kite with vertices *R*(2, 2), *S*(4, 0), *T*(2, –2), and *U*(–5,0) is multiplied by 1 .**  |
| **The height of the rectangle is tripled. Describe the effect on the area.** | The base and height of a rectangle with base 4 ft and height 5 ft are both doubled. |
| The radius of ⊙*J* is multiplied by 1/5.  | **The base and height of the triangle with vertices *P*(2, 5), *Q*(2, 1), and *R*(7, 1) are tripled. Describe the effect on its area and perimeter.**  |
| **A circle has a circumference of 32π in. If the area is multiplied by 4, what happens to the radius?** | **An equilateral triangle has a perimeter of 21m. If the area is multiplied by 1 , what happens to the side length?**  |



HW: Worksheet