Formative Assessment

Formative Assessment

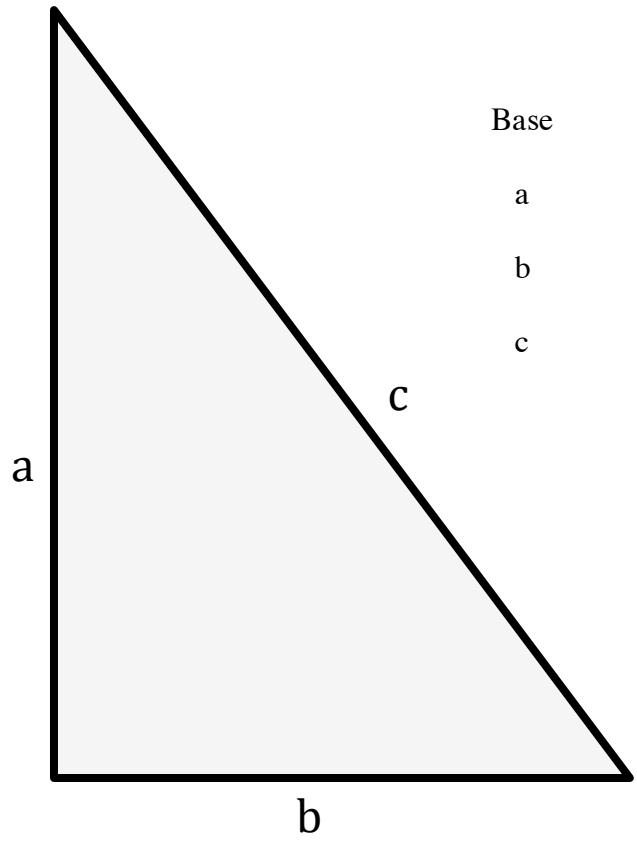
Administer the formative assessment and select contrasting student responses to create further opportunities for learning about area measure, especially the difference between units of length measure (perimeter) and units of area measure.

Formative Assessment — Area Unit 5

Name:_____

1. A triangle has three sides. Explain why the formula for the area measure of a triangle is $\frac{1}{2}\ b \times h$ and not $\frac{1}{3}\ b \times h$. Your explanation can include a drawing.

2. In the triangle below, find the heights for each side in the formula $A = \frac{1}{2}\ b \times h$. Draw the height when side c is the base.



Base	Height
a	_____
b	_____
c	_____

What is the area of this triangle?

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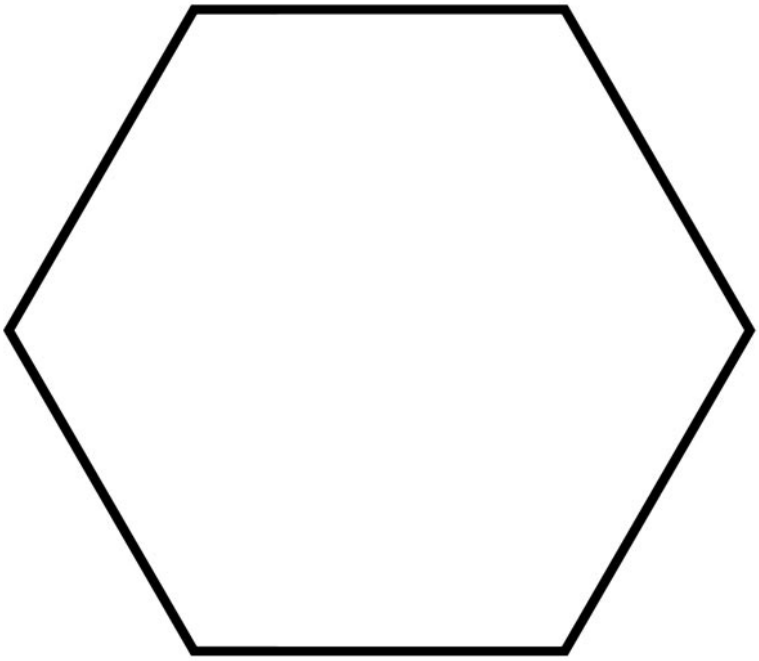
3. The measure of the area of a regular hexagon is $\frac{1}{2} P \times a$, where P is the perimeter of the hexagon and a is its apothem (the shortest distance from the center of the hexagon to the opposite side). Find the area measure of this regular hexagon. Show your work.



4. Explain why the area measure of a regular hexagon is $\frac{1}{2} P \times a$, where P is the perimeter of the hexagon and a is its apothem.

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Area Unit 5

5. The length of the circumference of a circle is _____ times as along as its diameter.

6. If the radius of a circle is 5 cm., what is its circumference? It's area?

7. Explain how the thinking about the formula for the area of a regular polygon, $A = \frac{1}{2} P \times a$, justifies the formula for the area of a circle, $A = \pi r^2$.

Formative Assessment Record — Area Unit 5

Item	Level Circle highest level of performance	Description Circle each criterion of performance met by student	Notes
Item 1 Explain/justify formula for area of a triangle.	**ToAM 5B** Generate, use, and explain area formula for a triangle.	Justifies by appeal to area of a parallelogram or rectangle as b x h and shows or says that triangle formed by splitting along the diagonal is $\frac{1}{2}\ b \times h$.	
	NL	Cannot justify.	
Item 2 Identify potential bases and associated heights of a right triangle.	**ToAM 5B** Generate, use, and explain area formula for a triangle.	Identifies height of base a as side length b. Identifies height of base b as side a. Draws height of base c as a perpendicular line segment through opposite vertex (the vertex formed by the intersection of sides a, b) Uses formula to find area.	
	Other Describe		
Item 3 Find area of regular hexagon	**ToAM 5C** Generate, use, and explain area formula for other polygons (e.g., hexagon).	Finds perimeter of hexagon. Finds apothem of hexagon. Area as $\frac{1}{2}\ P \times a$. Divides hexagon into 6 eq. triangles and finds area of one, finds area as 6 × that area.	
Item 4 Explain formula for area of a regular hexagon.	**ToAM 5C** Generate, use, and explain area formula for other polygons (e.g., hexagon).	Dissects hexagon into 6 eq. triangles Area of a triangle as $\frac{1}{2}\ b \times h$. Sum of bases is Perimeter, so $A\ = \frac{1}{2}\ P \times h$ (or a) [or equivalent expression]	
Item 5 C = π x D	**ToAM 5D** Generate, use, and explain area formula for circle (characterized as *n*-gon).	The length of the circumference of a circle is (3 or 3 1/10 or other reasonable approximation) times as long as its diameter.	
Item 6 Find circumference, area of circle with radius 5 cm.	**ToAM 5D** Generate, use, and explain area formula for circle (characterized as *n*-gon).	Understands that C = 2r. Finds area as 25 π or reasonable approximation.	
Item 7 Explain formula for area measure of a circle.	**ToAM 5D** Generate, use, and explain area formula for circle (characterized as *n*-gon).	Suggests perimeter of an n-gon and circumference are equivalent if n sides keeps increasing (or come closer and closer together). Suggests radius and apothem (or height of eq triangle in an *n*-gon) are equivalent. Establishes that since C = 2rπ, then $\frac{1}{2}\ C \times r\ =\ \pi r \times r$ or πr^2	

Worksheet Area of a Parallelogram

NAME:_____

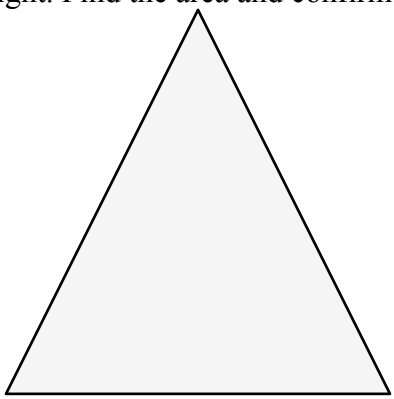
Find the area of this parallelogram:

Area = _____

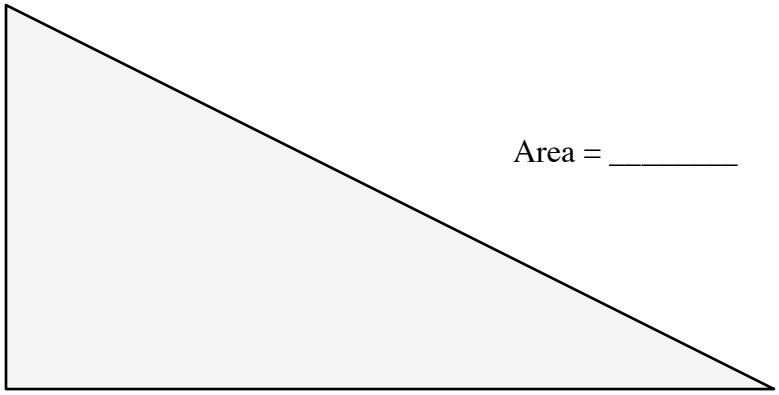
Worksheet Area of a Triangle

NAME:_____

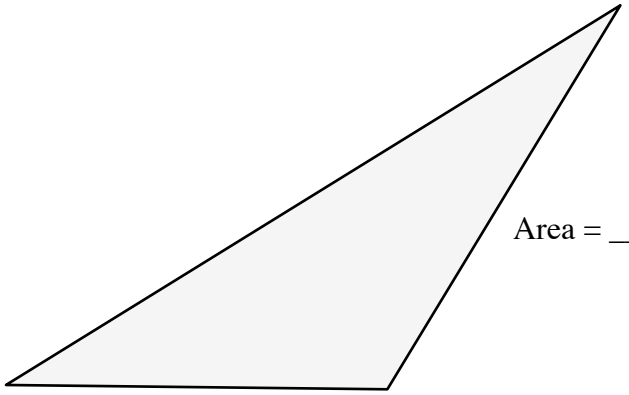
Find the area of each triangle by choosing one side as the base, and finding its height. Then choose a different side as the base and find its height. Find the area and confirm that they are the same measure.

1. 

Area = _____

2. 

Area = _____

3. 

Area = _____