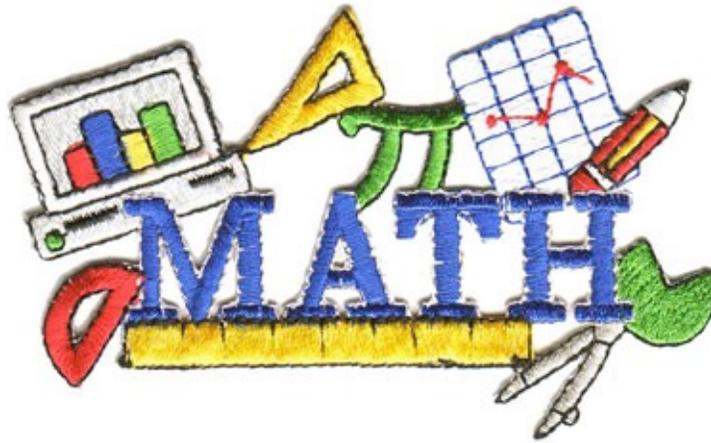# 8th Grade Math

## *Benchmark 4*

# Parent Handbook

*This handbook will help your child review material learned this quarter, and will help them prepare for their third Benchmark Test. Please allow your child to work independently through the material, and then you can check their work using the answer key in the back of the handbook. If you have any questions or concerns about this material, please contact your child's teacher. Thank you for your support.*

# Eighth Grade Benchmark #4
## Math Essential Standards

*Learning Objective #1:*
📌 **"Understand and use formulas for volumes of cones, cylinders, and spheres and use them to solve real-world context and mathematical problems." (8.M.G.C.09)**
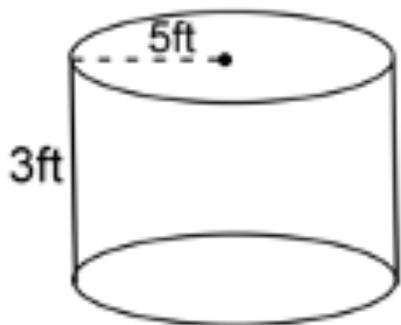
*Practice:*

1. Find the volume of the cylinder with a radius of 7 cm and a height of 10 cm. Leave the answer in terms of pi.
    a. $140\pi$ cm³
    b. $490\pi$ cm³
    c. $260\pi$ cm³
    d. $70\pi$ cm³

2. Find the volume of the sphere.
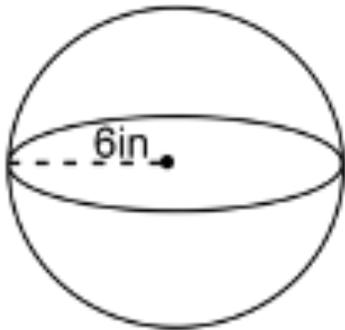
   

    a. $288\pi$ in³
    b. $6\pi$ in³
    c. $36\pi$ in³
    d. $216\pi$ in³

3. Find the volume of the cylinder.

   

    a. $15\pi$ ft³
    b. $5\pi$ ft³
    c. $45\pi$ ft³
    d. $75\pi$ ft³
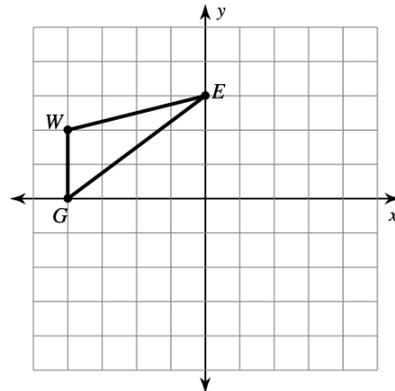
*Learning Objective #2:*

**"Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates. Understand that a two-dimensional figure is similar to another if, and only if, one can be obtained from the other by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that demonstrates similarity." (8.M.G.A.03-4)**

Graph the image of the figure using the transformation give.

4. translation: 1 unit left
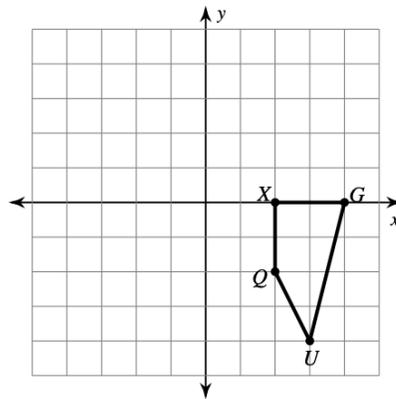


5. translation: 1 unit right and 2 units down



6. Find the coordinates of the vertices of each figure after the given transformation.

translation: 4 units left and 4 units up

J(−1, −2), A(−1, 0), N(3, −3)

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*Learning Objective #4:*

📌 *"Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles." (8.M.G.A.05)*

*Practice:*

**Use the diagram below to answer Questions #1 - #3.**
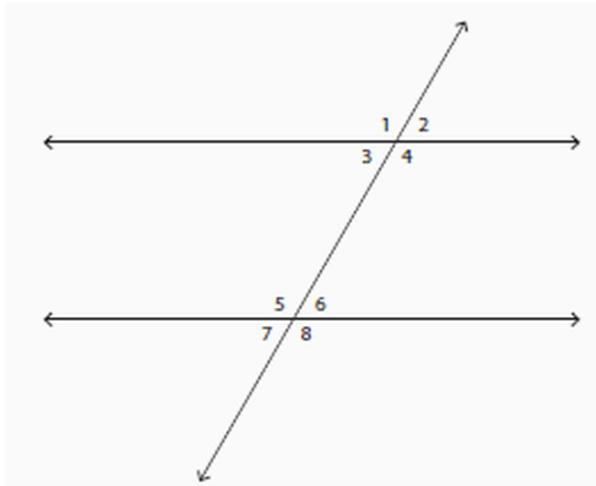


7. What is the angle relationship between m∠1 and m∠8?

    a. complementary angles              c. no relationship

    b. alternate interior angles          d. alternate exterior angles


8.  What is the angle relationship between m∠2 and m∠3?

    a. supplementary angles            c. alternate interior angles

    b. vertical angles                  d. alternate exterior angles


9. If m∠7 is 65°, what is the measure of ∠3? Why?



_____

# Benchmark 4 Essential Math Vocabulary

✦ **angle** - a geometric figure consisting of the union of two rays that share a common endpoint (vertex).

✦ **degree** (geometry) - a unit of measure based on dividing a circle into 360 equal parts, and used to measure angles, arcs, and rotations.

✦ **parallel lines** - two lines on the same plane that do not meet and are equal distance apart.

✦ **transversal** - a line that cuts through two or more lines (usually parallel)

✦ **alternate angles** - angles formed on different sides of a transversal.

✦ **interior angle** - angles formed on the insides of two lines cut by a transversal.

✦ **exterior angle** - angles formed on the outsides of two lines cut by a transversal.

✦ **complementary angles** - two angles whose sum equals 90 degrees.

✦ **supplementary angles -** two angles whose sum equals 180 degrees.

✦ **vertical angles -** one of two opposite and equal angles formed by the intersection of two lines.

✦ **corresponding angles** - the angles that occupy the same relative position at each intersection where a straight line crosses two others.

✦ **parallel lines** - are distinct lines lying in the same plane that never intersect each other and have the same slope.

✦ **combine -** to add two or more numbers or like terms into one as a way of simplifying an expression.

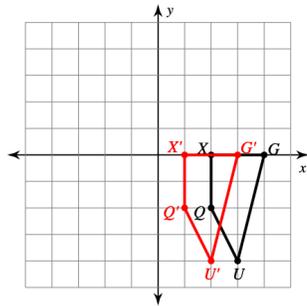✦ **like terms** - algebraic expressions in which variables and exponents are the same.
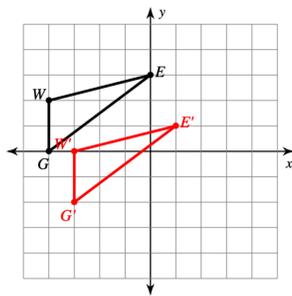
# MATH ANSWER KEY

1. B

2. A

3. D

4.



5.



6. J'(−5, 2), A'(−5, 4), N'(−1, 1)

7. D

8. B

9. 65° - Corresponding angles are not congruent