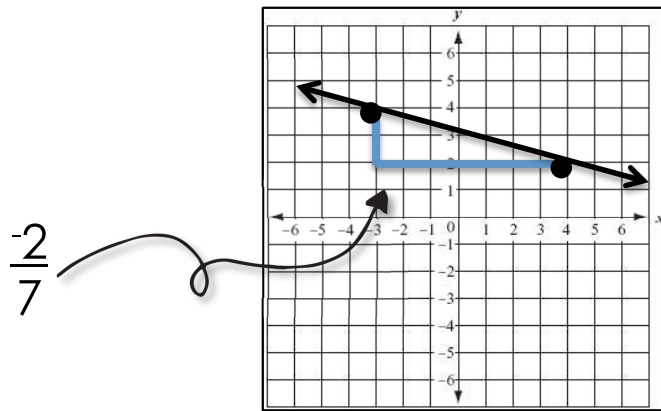


SLOPE FROM A GRAPH

hint card

- Calculate the rise (vertical change) and the run (horizontal change) between the two points. Write as $\frac{\text{rise}}{\text{run}}$.



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SLOPE FROM TWO POINTS

hint card

- (x_1, y_1) and (x_2, y_2)
 - Substitute the numbers from each ordered pair into the equation $\frac{y_2 - y_1}{x_2 - x_1}$.
 - Be careful with negative numbers. Remember that subtracting a negative is the same as adding a positive. (e.g. $5 - -4 = 5 + 4$)

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GRAPHING LINEAR EQUATIONS

hint card

- Slope intercept form : $y = mx + b$
 - x and y are the coordinates in an ordered pair on the line.
 - m is the slope
 - b is the y -intercept
- Graph the y -intercept first. From there, use the slope to determine an additional point or two.

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WRITING LINEAR EQUATIONS

hint card

- From a line, identify the slope and y -intercept.
- If the y -intercept is not obvious, pick two points on the line and use them to first find the slope.
Substitute the slope and coordinates of one point into $y = mx + b$ and solve for b (the y -intercept).
- Substitute the slope (m) and y -intercept (b) into the equation $y = mx + b$.

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MULTI-STEP EQUATIONS

hint card

- Eliminate parentheses using the distributive property.
- Combine like terms.
- Ensure the variables are on one side of the equation.
- Eliminate the constant through inverse operations (usually addition or subtraction).
- Eliminate the coefficient through inverse operations (usually multiplication or division).

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VOLUME OF ROUNDED FIGURES

hint card

- Cylinders : $\pi \cdot r^2 \cdot h$
- Cones : $\frac{1}{3} \cdot \pi \cdot r^2 \cdot h$
- Spheres : $\frac{4}{3} \cdot \pi \cdot r^3$

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SCIENTIFIC NOTATION

hint card

- Multiplying : Multiply the first terms. Add the exponents.

$$\bullet (a \cdot 10^m) \cdot (b \cdot 10^n) = ab \cdot 10^{m+n}$$

- Dividing : Divide the first terms. Subtract the exponents.

$$\bullet \frac{a \cdot 10^m}{b \cdot 10^n} = a \div b \cdot 10^{m-n}$$

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TRANSFORMATIONS

hint card

- Translations :

- Vertical or horizontal slide
- $(x, y) \longrightarrow (x + a, y + b)$

- Reflections :

- Vertical or horizontal flip
- **x**: $(x, y) \longrightarrow (x, -y)$ **y**: $(x, y) \longrightarrow (-x, y)$

- Rotations :

- 90°, 180° or 270° clockwise or counter-clockwise rotation around a point.
- 90° cc : $(x, y) \longrightarrow (-y, x)$ 180° cc : $(x, y) \longrightarrow (-x, -y)$

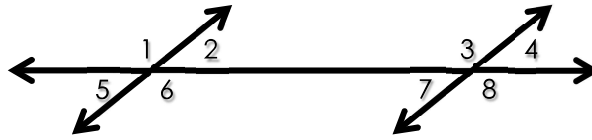
- Dilations :

- A stretch or shrink using a given scale factor (k).
- $(x, y) \longrightarrow (kx, ky)$

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PARALLEL LINES & TRANSVERSALS



PARALLEL LINES	Two lines that will never cross.
TRANSVERSAL	A line that cuts through two parallel lines.
SUPPLEMENTARY ANGLES	Angles with a sum of 180° . Examples : $\angle 7$ and $\angle 8$, $\angle 1$ and $\angle 2$
INTERIOR ANGLES	Angles along the transversal inside the parallel lines. Examples : Angles 2, 3, 6 and 7
ALTERNATE ANGLES	Angles on opposite sides of the transversal. Examples : $\angle 2$ and $\angle 7$ are alternate interior angles.
CORRESPONDING ANGLES	Two angles that are in the same place, on different parallel lines. For example, $\angle 2$ and $\angle 4$ are corresponding angles.
VERTICAL ANGLES	Vertical angles share a vertex but not a side. Example : $\angle 3$ and $\angle 8$ are vertical angles.