| BIG PICTURE of this UNIT: | - mastery with linear algebraic skills to be used in our work with coordinate geometry (midpoint, length, slope) <br> - understanding various geometric properties of quadrilaterals, triangles \& circles <br> - how do you really "prove" that something is "true"? <br> - introduction to working with 3D shapes |
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## Part 1 - Skills Review

1. Find the volume and surface area of the rectangular prism shown.
2. An isosceles triangle has sides of lengths $10 \mathrm{~cm}, 10 \mathrm{~cm}$ and 15 cm .

Determine its area.
3. Find the intersection of the following 2 lines: $y=-2 x+5$ and $3 x-2 y=11$.


## Part 2 - Skills \& Concept REVIEW/EXPLORATION

1. A triangle has vertices at $\mathrm{A}(-3,-2), \mathrm{B}(-5,-6)$, and $\mathrm{C}(5,0)$.
a. Determine the equation of the median from vertex $A$.
b. Determine the equation of the altitude from vertex $A$.
c. Determine the equation of the perpendicular bisector of BC .
d. What type of triangle is $\triangle \mathrm{ABC}$ ? Explain how you know.
2. Points $P(-9,2)$ and $Q(9,-2)$ are endpoints of a diameter of a circle.
a. Write the equation of the circle.
b. Show that $R(7,6)$ is also on the circle.
c. Show that $\angle \mathrm{PRQ}$ is a right angle.
3. A trapezoid has vertices at $\mathrm{A}(1,2), \mathrm{B}(-2,1), \mathrm{C}(-4,-2)$ and $\mathrm{D}(2,0)$.
a. Show that the line segment joining the midpoints of BC and AD is parallel to both AB and DC .
b. Show that the length of this line segment is half the sum of the lengths of the parallel sides.

## Part 3 - NEW Skills \& PRACTICE

1. Prisms are 3D figures that have congruent parallelogram sides, and a solid base, which is either of two parallel ends on the figure.

## Examples



Each figure above is a kind of prism. The first is called a $\qquad$ . The second is called a $\qquad$ . The third is a $\qquad$ , and the fourth is a $\qquad$ _.

The formula to find the volume of a prism is: $\mathrm{V}=$ area of base $\times$ height

To find the surface area, we sum together the areas of all faces of the prism.
2. Find the volume and surface area of each of the following prisms:


3. Solve for the unknown in each of the following prisms:

1. Volume $=600 \mathrm{~cm}^{3}$

2. Volume $=440 \mathrm{~m}^{3}$

