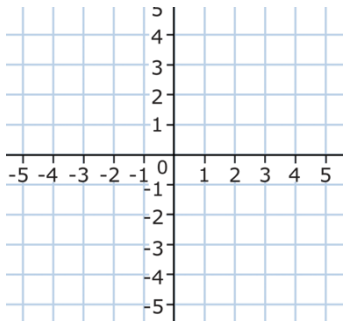
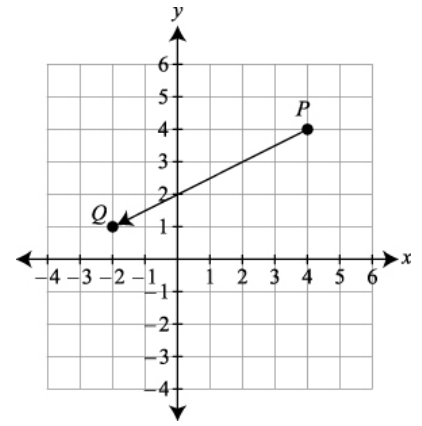


Partitioning a Segment      Coordinate Geometry Review

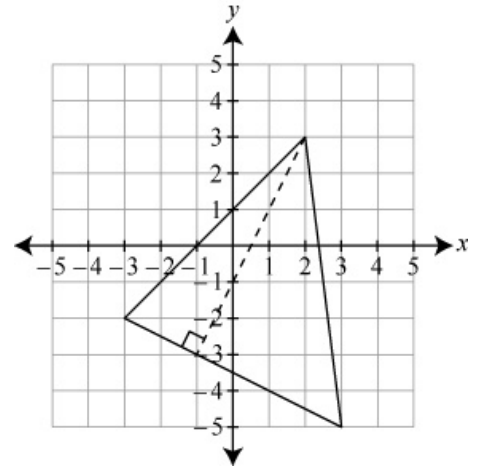
1. Directed line segment PQ is shown here. What are the coordinates of the point  $\frac{1}{3}$  of the way from P(4,4) to Q(-2,1)?



2. On the graph here, place the point that is  $\frac{2}{3}$  of the way from R to S if RS has coordinates R(-2,-2) and S(4,1).

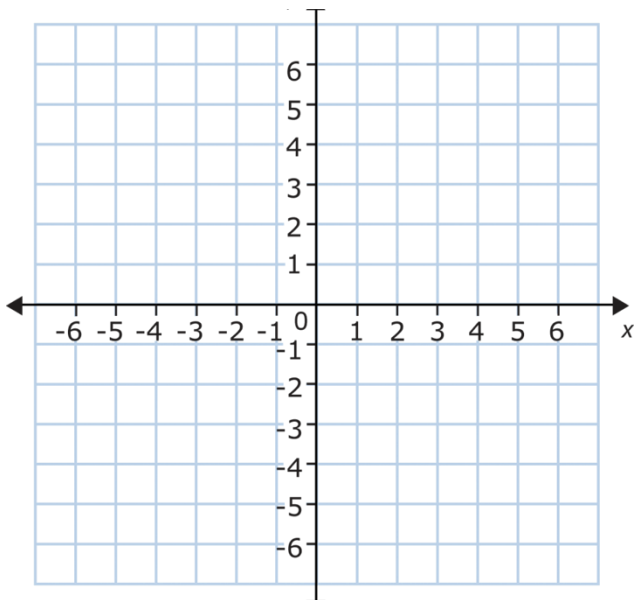
Coordinates, Distance, and Area

3. To the nearest tenth, find the perimeter of a triangle with vertices at (-3,4), (5,2), and (2,-2).
4. Find the area, to the nearest tenth, of the triangle shown.

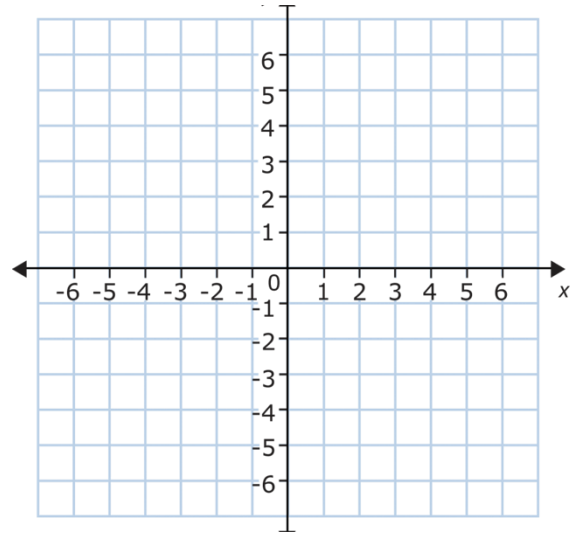


Lines and Shapes on the Coordinate Plane

5. On the grid below, graph the line that is parallel to the line with equation  $-\frac{1}{3}x + y = 2$  and that passes through the point (3,0).



6. On the grid, graph the line that is the perpendicular bisector of the line segment with endpoints (-2,4) and (2,-2).



7. Write the equation of a line perpendicular to  $y = \frac{2}{3}x - 4$  that passes through (-1,4).

8. What is the best name for the quadrilateral formed by the points A(-3,0), B(-2,3), C(1,4), and D(0,1)? [ parallelogram      rhombus but not square      rectangle but not square      square]

## Volume and Area Formulas to know:

Circle:

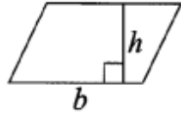
$$A = \pi * radius^2$$

$$\text{Circumference (perimeter)} = 2\pi * radius$$



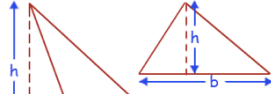
All parallelograms:

$$A = base * height$$



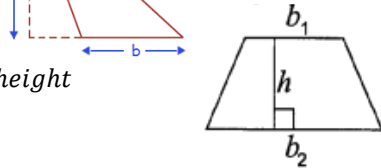
Triangle:

$$A = \frac{1}{2} * base * height$$



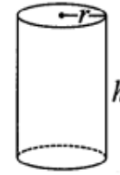
Trapezoid

$$A = \frac{1}{2}(base_1 + base_2) * height$$



Cylinder:

$$V = \pi * radius^2 * height$$



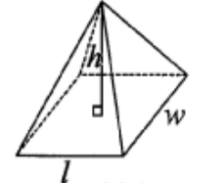
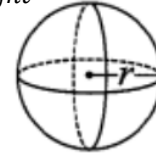
Cone:

$$V = \frac{1}{3} \pi * radius^2 * height$$



Sphere:

$$V = \frac{4}{3} \pi * radius^3$$

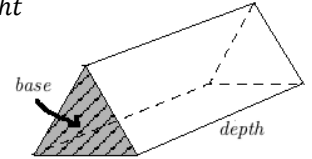


Rectangular Pyramid:

$$V = \frac{1}{3} * length * width * height$$

All Prisms

$$V = (area\ of\ base) * depth$$



Volume Practice: Show sketches and calculations on separate paper.

- An ice box has dimensions  $12 \times 24 \times 16$  inches. It is full of shaved ice for snow cones. Each paper cone cup has a radius of 1.5 inches and a height of 5 inches. Assuming the ice does not melt and that each cup is filled completely, about how many cups can be filled?
- To provide runners with water during a race, organizers are using 5" tall cylindrical cups with diameter 2.5". The water coolers they have hold 800 cubic inches of water each. If there are 120 runners and each runner gets 2 cups of water, how many coolers will the organizers need to have?
- A cylindrical tube has a base diameter of 8 inches and a height of 10 inches. The volume of the container is to be increased by 20% without changing the base. What is the new height, in inches?
- A packaging company needs to determine the maximum number of their plastic bottles that will fit, standing straight up, into a box. The box is 24 inches long by 24 inches wide, and the height of the box is equal to the height of one plastic bottle. Each plastic bottle has a radius of 4 inches and a height of 12 inches. What is the maximum number of bottles that will fit in the box?
- In early space missions, astronauts ate some foods from tubes shaped like right triangular prisms. The right triangular base of the prisms had a height of 5 centimeters and a base of 1 centimeter. The tubes were 5 centimeters long (depth). What is the maximum number of these tubes that could fit into a box with dimensions 25 cm by 20 cm by 6 cm?
- Alice is making a decorative table cloth for her small circular side-table. The tabletop has a diameter of 40cm and stands 60cm in height. She wants the table cloth to hang an even 10 cm above the ground.
  - Does she need a rectangular or circular table cloth for this? Explain.
  - What is the size (radius or length/width) in centimeters of the tablecloth she needs?