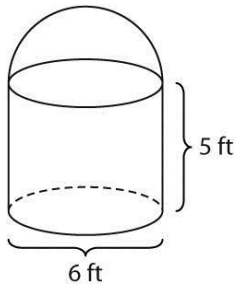


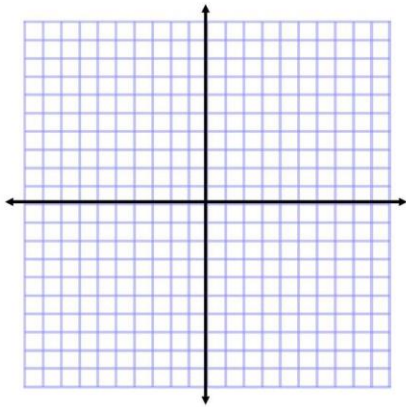
Midterm Review Integrated 3 Short Response 2016-2017

1. A company sells several sizes of the same design of trash cans. The trash cans consist of a cylinder and a hemisphere. The smallest size trash can has the dimensions shown.

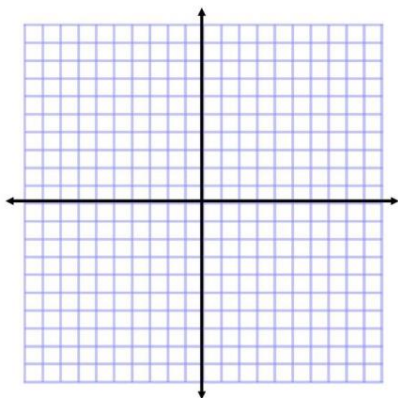


What is the volume of the trash can?

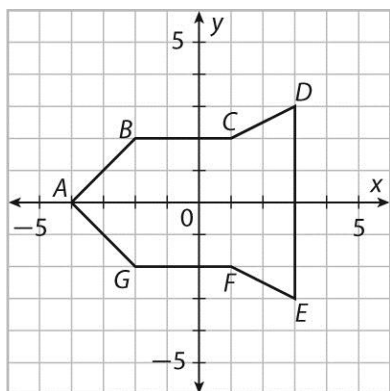
2. Is the triangle with vertices $A(-2, -2)$, $B(1, 4)$, and $C(4, -5)$ isosceles? Explain/Show.



3. Three vertices of quadrilateral $ABCD$ are $A(-5, 5)$, $B(0, 0)$, and $C(7, 1)$. What are the coordinates of the fourth point such that the quadrilateral is a rhombus?

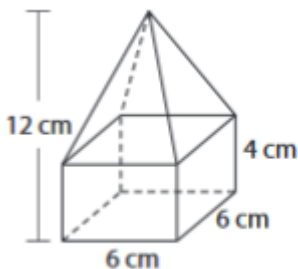


4. What is the perimeter of the figure?



5. A right cone has a slant length of 22 centimeters and a radius of 14 centimeters. What is the surface area of the cone?

6. What is the surface area of the composite figure of a square pyramid on top of a cube?



7. The dimensions of the triangle are decreased by a scale factor of $\frac{1}{3}$. What is the area of the resulting triangle compared to the original?

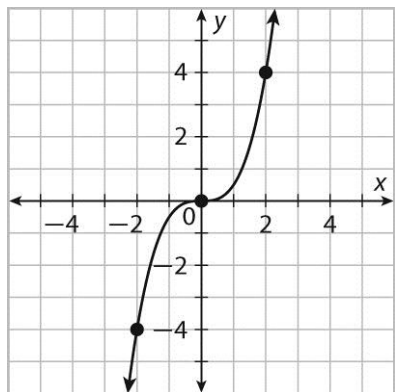
8. The density of a steel ball is 16 grams per cubic centimeter. What is the mass of a steel ball with radius 4 centimeters?

9. The territory of a town can be modeled by a rectangle with dimensions 12 miles and 7 miles. If the town has a population of 28,500, what is its population density? Round to the nearest person.

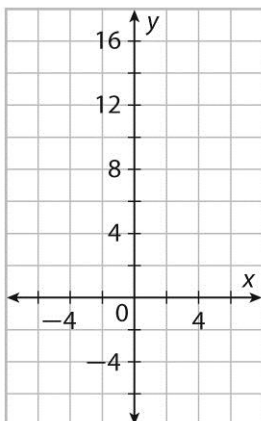
10. Use the Binomial Theorem to expand $(x + 6)^4$.

11. Use synthetic division to determine all factors of $p(x) = x^3 - 4x^2 - 25x + 100$, given that $x - 4$ is a factor.

12. Draw the graph if the function shown below is translated 2 units left and 1 unit down. Draw and label the reference points on the curve that you draw.



13. Sketch the graph of $f(x) = -x^2(x + 4)(x - 2)$



Write the simplest polynomial function with the given zeros.

14. 4, $-3i$

Solve the polynomial equation by finding all real roots.

15. $g(x) = x^3 - x^2 - 10x - 8$
