

1. Identify the vertical asymptote and the horizontal asymptote of the rational function:

$$f(x) = \frac{2x^2 + 17x + 15}{x^2 - 6x - 27}$$

Vertical asymptote:

Horizontal asymptote:

2.

. A cone has a volume of  $432\pi \text{ cm}^3$  and a height of 9 cm.

a) Calculate the radius of the cone

b) Calculate the slant height of the cone.

3. True or False: It is possible to prove a quadrilateral is a parallelogram if one pair of opposite angles is congruent.

4. . The volume of a cube measures  $4,913 \text{ cm}^3$ . What is the length of one side of the cube?

5. Which point of concurrency is the intersection of the medians of the triangle?

6. Owen has a rectangular pan with dimensions  $12\text{ft.} \times 8\text{ft.} \times 5.5\text{ft.}$ . He has a cylindrical glass with a diameter of  $2\text{ft.}$  and a height of  $8\text{ft.}$  If Owen fills the cylindrical glass full with liquid and pours it completely into the pan, how many times can he do this before it overflows?

7. Find the product:  $(8 + 3i)(2 - 5i)$

8. Use synthetic division to find the value of the remainder:

$$3x^4 - 15x^2 + 7x - 9 \div (x - 3)$$

9. What is the area of a  $80^\circ$  sector in the circle  $(x + 4)^2 + (y - 7)^2 = 121$ ?

10. Write the resulting transformed function when the parent graph:  $f(x) = |x|$  is translated up 4 and right 6.