

Spring Final Exam Review

**Solve each equation. Remember to check for extraneous solutions.**

1)  $\sqrt{-4 - 2b} = \sqrt{1 - b}$

2)  $5 = \sqrt{1 - 12b}$

3)  $\sqrt{-40 + 14v} = v$

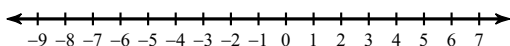
**Solve each equation.**

4)  $|4 - 10x| = 0$

5)  $|5a + 1| = 46$

**Solve each inequality and graph its solution.**

6)  $|3 - 10m| + 9 > 52$



**Simplify each and state the excluded values.**

7)  $\frac{10a - 60}{a^2 - 4a - 32}$

**Simplify each expression.**

8)  $\frac{x + 5}{x + 3} \div \frac{x^2 + 2x - 15}{x^2 - 8x + 15}$

9)  $\frac{p^2 - 14p + 49}{3p} \cdot \frac{1}{p - 7}$

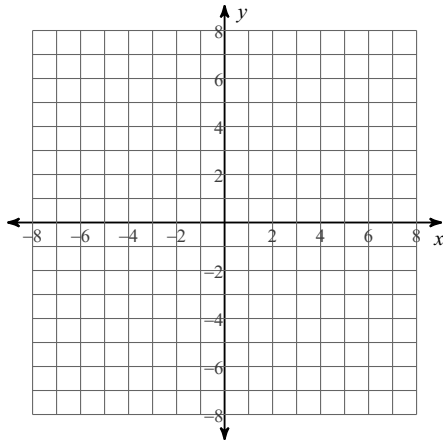
10)  $\frac{x + 8}{5x - 5} - \frac{4}{7x}$

11)  $\frac{5}{2m^2} + \frac{m - 5}{7m + 8}$

12)  $\frac{\frac{3x - 1}{4}}{\frac{3x - 1}{x^2} + \frac{3x - 1}{4}}$

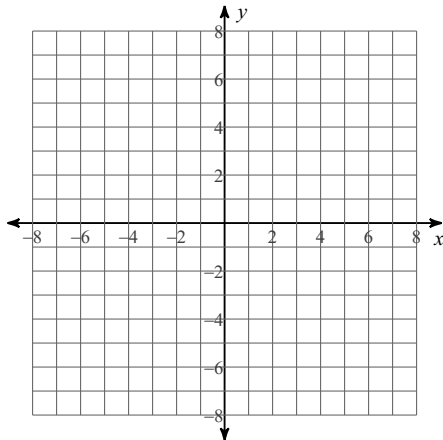
Identify the holes, vertical asymptotes, x-intercepts, horizontal asymptote, and domain of each. Then sketch the graph.

$$13) f(x) = \frac{x+1}{4x+8}$$



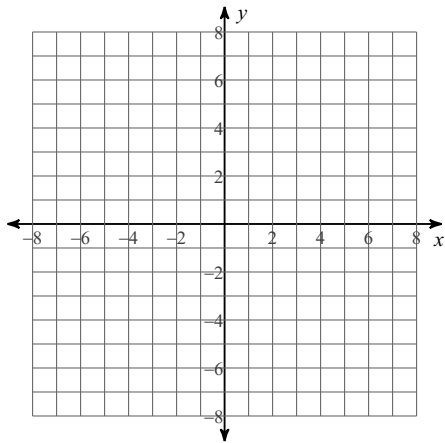
Identify the holes of each. Then sketch the graph.

$$14) f(x) = \frac{x}{x^3 - 4x}$$



**Graph each function.**

$$15) f(x) = \frac{2x^2 + 2x - 12}{x^2 - 2x - 3}$$



**Simplify.**

$$16) (n^8)^{-\frac{3}{4}}$$

**Simplify. Your answer should contain only positive exponents with no fractional exponents in the denominator.**

$$17) 4x \cdot 2x^{\frac{1}{3}} y^{\frac{1}{3}}$$

$$18) u^{\frac{1}{2}} v^{-\frac{3}{2}} \cdot 3u$$

**Write each expression in radical form.**

$$19) 10^{\frac{6}{5}}$$

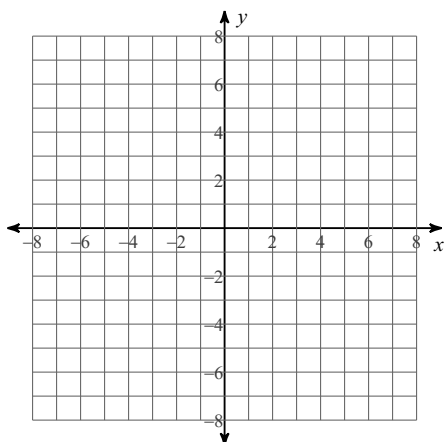
**Find the inverse of each function.**

$$20) y = 10^x - 10$$

$$21) y = \log_3(-4x)$$

Identify the domain and range of each. Then sketch the graph.

22)  $y = \log_2 (x - 1) + 3$



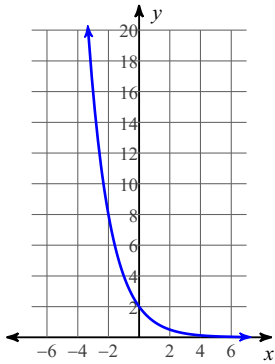
Identify the domain and range of each.

23)  $y = \ln (x - 2) + 2$

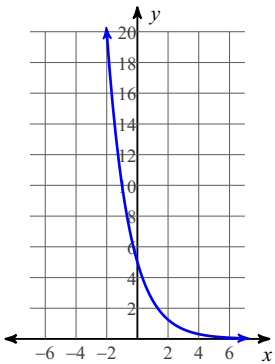
Sketch the graph of each function.

$$24) y = \frac{1}{3} \cdot \left(\frac{1}{7}\right)^x$$

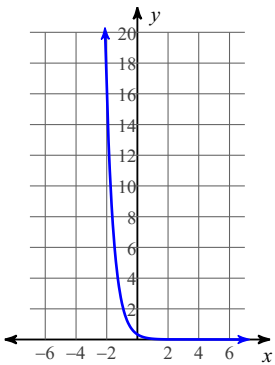
A)



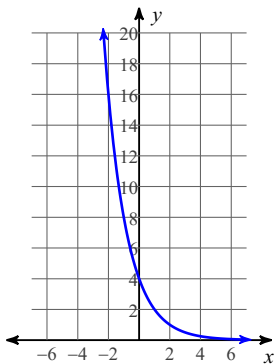
B)



C)



D)



Solve each equation.

$$25) \log_5 10 + \log_5 (x + 4) = 2$$

$$26) \log_7 4 - \log_7 4x = 1$$

$$27) \log_5 3 - \log_5 (x - 10) = 1$$

$$28) \log_2 (x - 4) - \log_2 7 = 3$$

$$29) 2^{2v} = 2^{-v}$$

**Solve each equation. Round your answers to the nearest ten-thousandth.**

$$30) 3^{k+9} - 7 = 84$$

**Evaluate each expression.**

$$31) \log_4 \frac{1}{16}$$

32) If you deposit \$5,000 into a bank account which earns 4.25% compounded continuously, how long will it take for your money to triple?

33) If your boat depreciates at a rate of 5% each year, how much is it worth in 6 years if the initial value of your boat was \$16,000?