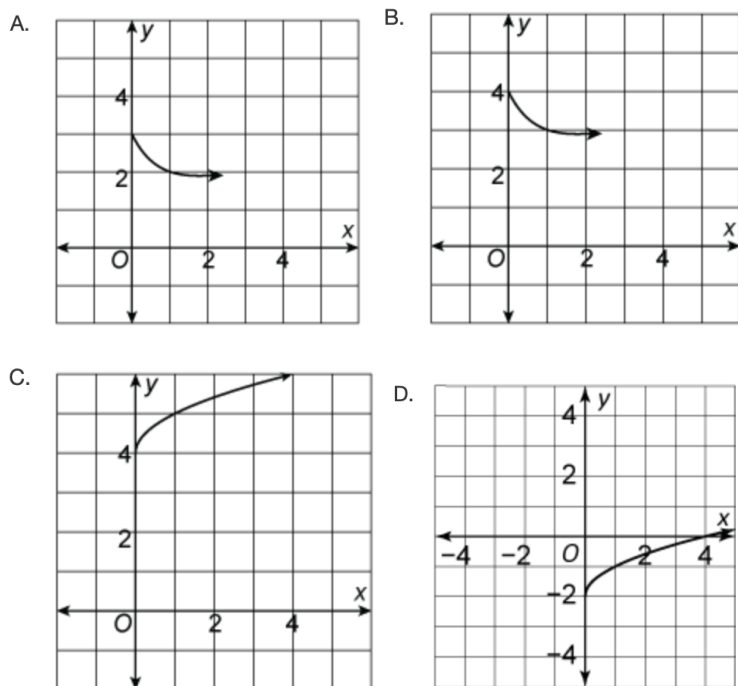


1	<p>R varies inversely with x. If $R = -2$ when $x = 6$, what is the value of R when $x = -3$?</p> <p> <input type="radio"/> A. -1 <input type="radio"/> B. 4 <input type="radio"/> C. -4 <input type="radio"/> D. 1 </p>												
2	<p>What are the horizontal and vertical asymptotes of the graph of $y = \frac{x^2 - x - 6}{14 - 9x + x^2}$?</p> <p> <input type="radio"/> A. $y = 3; x = 5, x = 2$ <input type="radio"/> B. $y = 1; x = 7, x = 2$ <input type="radio"/> C. $y = 6; x = 7, x = 4$ <input type="radio"/> D. $y = 1; x = 6, x = 2$ </p>												
3	<p>Describe the transformations needed to translate the graph of $y = \frac{1}{x}$ to the graph of $y = \frac{1}{x+1} - 3$.</p> <p> <input type="radio"/> A. to the right 1 and down 3 <input type="radio"/> C. to the left 1 and down 3 <input type="radio"/> B. to the right 1 and up 3 <input type="radio"/> D. to the left 1 and up 3 </p>												
4	<p>Simplify $\sqrt[4]{16a^4b^{20}}$.</p> <p> <input type="radio"/> A. $4a^2b^{10}$ <input type="radio"/> B. $4a^2 b^5$ <input type="radio"/> C. $2b^{16}$ <input type="radio"/> D. $2 a \cdot b^5$ </p>												
5	<p>Which of the following is equivalent to $\frac{14}{3 - \sqrt{2}}$?</p> <p> <input type="radio"/> A. $\frac{42 - 14\sqrt{2}}{11}$ <input type="radio"/> C. $6 - 2\sqrt{2}$ <input type="radio"/> B. $6 + 2\sqrt{2}$ <input type="radio"/> D. $4\sqrt{2}$ </p>												
6	<p>The graph of $y = \sqrt{x}$ has been translated to the right 1 unit and up 4 units. What is the equation of the translated graph?</p> <p> <input type="radio"/> A. $y = 1 + \sqrt{x+4}$ <input type="radio"/> C. $y = 4 + \sqrt{x-1}$ <input type="radio"/> B. $y = 4 - \sqrt{x-1}$ <input type="radio"/> D. $y = 3 + \sqrt{x}$ </p>												
7	<p>Use the following drop-down menus: The function g has domain $x \geq 0$ and range $y \geq 3$. What are the domain and range of g^{-1}?</p> <p>Circle the correct domain and range.</p> <table border="1" style="width: 100%;"> <thead> <tr> <th style="width: 50%;">domain</th> <th style="width: 50%;">range</th> </tr> </thead> <tbody> <tr> <td>Choose...</td> <td>Choose...</td> </tr> <tr> <td><input type="radio"/> $x \leq 3$</td> <td><input type="radio"/> $y \leq 3$</td> </tr> <tr> <td><input type="radio"/> $x \leq 0$</td> <td><input type="radio"/> $y \leq 0$</td> </tr> <tr> <td><input type="radio"/> $x \geq 3$</td> <td><input type="radio"/> $y \geq 3$</td> </tr> <tr> <td><input type="radio"/> $x \geq 0$</td> <td><input type="radio"/> $y \geq 0$</td> </tr> </tbody> </table>	domain	range	Choose...	Choose...	<input type="radio"/> $x \leq 3$	<input type="radio"/> $y \leq 3$	<input type="radio"/> $x \leq 0$	<input type="radio"/> $y \leq 0$	<input type="radio"/> $x \geq 3$	<input type="radio"/> $y \geq 3$	<input type="radio"/> $x \geq 0$	<input type="radio"/> $y \geq 0$
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<input type="radio"/> $x \geq 3$	<input type="radio"/> $y \geq 3$												
<input type="radio"/> $x \geq 0$	<input type="radio"/> $y \geq 0$												

8 Which graph shows the function $f(x) = -2 + \sqrt{x}$?



9 Let $f(x) = \sqrt{x - 2}$ and $g(x) = 3x$.
What is the domain of $f \circ g$?

- ☐ A. $x > \frac{3}{2}$ ☐ B. $x < \frac{1}{3}$ ☐ C. $x \geq \frac{2}{4}$ ☐ D. $x \geq \frac{2}{3}$

10 If $h(x) = 4x - 3$, what is an equation for $h^{-1}(x)$?

- ☐ A. $h^{-1}(x) = 3x + 4$ ☐ C. $h^{-1}(x) = \frac{x + 3}{4}$
- ☐ B. $h^{-1}(x) = 3x - 4$ ☐ D. $h^{-1}(x) = \frac{x - 3}{4}$

11 For the function $f(x) = \frac{1}{3} \cdot 6^x$, identify the y-intercept and asymptote.
Use the drop-down menus to show your answer.

y-intercept:

Choose...

- (0, -4)
(0, 1/3)
(0, 1)

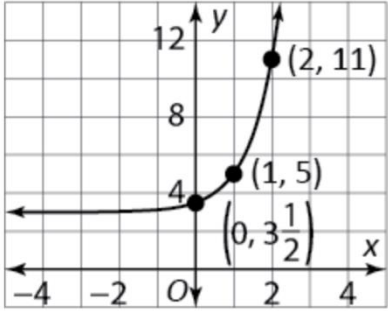
Asymptote:

Choose...

- $y = 0$
 $y = -4$

12 A warren of rabbits has a population of 350. The population is increasing at a rate of 3% per year.
How can you write an exponential growth function to find the monthly growth rate?

- ☐ A. $y = 350(0.9925)^t$ ☐ C. $y = 350(1.9925)^t$
- ☐ B. $y = 350(1.0025)^{12t}$ ☐ D. $y = 350(0.9925)^{4t}$

13	<p>Which function is the inverse of the exponential function $y = \left(\frac{3}{2}\right)^x$?</p> <p> <input type="radio"/> A. $y = \left(\frac{2}{3}\right)^x$ <input type="radio"/> C. $y = \log \frac{3}{2} x$ </p> <p> <input type="radio"/> B. $y = (x)^{\frac{3}{2}}$ <input type="radio"/> D. $y = \log_x \left(\frac{2}{3}\right)$ </p>
14	<p>What is the solution to the equation $\log_2 (5x - 2) = -2$? Enter your answer in the box.</p> <p>$x =$ <input type="text"/></p> <p>Write your solution as a decimal.</p>
15	<p>The graph shows the function $f(x) = \frac{1}{2} \cdot 4^x + 3$.</p> <p>What is the value of the inverse function f^{-1} at $x = 5$?</p> <p> <input type="radio"/> A. 5 <input type="radio"/> C. 1 </p> <p> <input type="radio"/> B. $3\frac{1}{2}$ <input type="radio"/> D. 2 </p> 
16	<p>What is the equation of the inverse of the function $f(x) = \log_5(2x)$?</p> <p> <input type="radio"/> A. $y = \frac{1}{2} \cdot 5^x$ <input type="radio"/> C. $y = \frac{1}{2} \cdot 4^x$ </p> <p> <input type="radio"/> B. $y = \frac{1}{2} \cdot 6^x$ <input type="radio"/> D. $y = \frac{1}{2} \cdot 3^x$ </p>
17	<p>Which of the following is equivalent to the expression $\log \frac{m^2}{np^4}$?</p> <p> <input type="radio"/> A. $2 \log m - \log n - 4 \log p$ <input type="radio"/> C. $2 \log m - \log n + 4 \log p$ </p> <p> <input type="radio"/> B. $\frac{\log m^2}{4 \log np}$ <input type="radio"/> D. $8 \frac{\log m}{\log np}$ </p>

18	<p>Part A</p> <p>What is the explicit formula for the geometric sequence 2, 6, 18, 54, ...?</p> <p> <input type="radio"/> A. $a_n = 2 \cdot (3)^{n-1}$ <input type="radio"/> C. $a_n = 2 \cdot (4)^{n-1}$ </p> <p> <input type="radio"/> B. $a_n = 2 \cdot (3)^{n+1}$ <input type="radio"/> D. $a_n = 2 \cdot (4)^{n+1}$ </p> <p>Part B</p> <p>What is the recursive formula for the geometric sequence 2, 6, 18, 54, ...?</p> <p> <input type="radio"/> A. $a_n = \begin{cases} 3, & \text{if } n = 1 \\ 3 \cdot a_{n-1}, & \text{if } n > 1 \end{cases}$ <input type="radio"/> C. $a_n = \begin{cases} 3, & \text{if } n = 0 \\ 3 \cdot a_{n-1}, & \text{if } n > 0 \end{cases}$ </p> <p> <input type="radio"/> B. $a_n = \begin{cases} 2, & \text{if } n = 1 \\ 3 \cdot a_{n-1}, & \text{if } n > 1 \end{cases}$ <input type="radio"/> D. $a_n = \begin{cases} 2, & \text{if } n = 2 \\ 3 \cdot a_{n-1}, & \text{if } n > 2 \end{cases}$ </p> <p>Part C</p> <p>What is the sum of the first 5 terms in the sequence?</p> <p> <input type="radio"/> A. 342 <input type="radio"/> B. 642 <input type="radio"/> C. 424 <input type="radio"/> D. 242 </p>
19	<p>What is the domain of the function $f(x) = \frac{x^2 - x - 2}{x^2 - 5x + 6}$?</p> <p> <input type="radio"/> A. $x \neq -2$ or 3 <input type="radio"/> C. $x \neq 2$ or -3 </p> <p> <input type="radio"/> B. $x \neq -2$ or -3 <input type="radio"/> D. $x \neq 2$ or 3 </p>
20	<p>Luke and Nora can peel 20 carrots in 6 min, working together. Luke can peel 5 carrots in 2 min, working alone. How many minutes would it take Nora to peel 10 carrots, working alone?</p> <p> <input type="radio"/> A. 15 <input type="radio"/> B. 12 <input type="radio"/> C. 8 <input type="radio"/> D. 4 </p>
21	<p>What are the horizontal and vertical asymptotes of the graph of $y = \frac{5x + 1}{2x - 5}$?</p> <p> <input type="radio"/> A. $y = 2.5$; $x = 2.5$ <input type="radio"/> C. $y = 0$; $x = 2.5$ </p> <p> <input type="radio"/> B. $y = 2.5$; $x = -2.5$ <input type="radio"/> D. $y = 0$; $x = -2.5$ </p>