

Unit 2 Test Review 3

<p>1) Rewrite the expression $\sqrt[5]{x^2} \cdot x^{1/3}$ in radical form.</p> $X^{\frac{2 \cdot 3}{5 \cdot 3}} \cdot X^{\frac{1 \cdot 5}{3 \cdot 5}} = X^{\frac{6}{15}} \cdot X^{\frac{5}{15}} = X^{\frac{11}{15}} = \boxed{\sqrt[15]{X^{11}}}$	<p>2) Rewrite the expression $\sqrt{x^{4/3}}$ in radical form.</p> $(X^{4/3})^{1/2} = X^{4/6} = X^{2/3} = \boxed{\sqrt[3]{X^2}}$
<p>3) Solve the formula for w. $h = 4\sqrt{\frac{2w}{k}}$</p> $\left(\frac{h}{4}\right)^3 = \left(\sqrt{\frac{2w}{k}}\right)^3$ $\frac{k \cdot h^3}{64} = \frac{2w \cdot k}{k} \cdot \frac{1}{2} \cdot \frac{kh^3}{64} = 2w \cdot \frac{1}{2}$ $\boxed{w = \frac{kh^3}{128}}$	<p>4) What is the domain of $g(x) = 8 - \sqrt{10 - 4x}$?</p> $10 - 4x \geq 0$ $-4x \geq -10$ $\frac{-4x}{-4} \geq \frac{-10}{-4}$ $\boxed{x \leq \frac{5}{2}}$

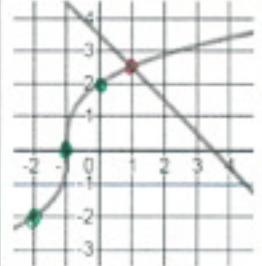
Use the function $f(x) = 6 - 4\sqrt{x+3}$ to answer questions 5 to 13.

<p>5) Find the decimal approximation for the x-intercept of $f(x)$. $y=0$</p> $0 = 6 - 4\sqrt{x+3}$ $-6 = -4\sqrt{x+3}$ $\left(\frac{3}{2}\right)^2 = (\sqrt{x+3})^2$ $\frac{9}{4} = x + 3$ $x = \frac{9}{4} - 3 = \boxed{-0.75}$	<p>6) Find the decimal approximation for the y-intercept $f(x)$. $x=0$</p> $f(0) = 6 - 4\sqrt{0+3}$ $f(0) = 6 - 4\sqrt{3}$ $f(0) = \boxed{-0.93}$	<p>7) Find the average rate of change of $f(x)$ on $[-2, 1]$.</p> $f(-2) = 6 - 4\sqrt{-2+3} = 6 - 4 = 2$ $f(1) = 6 - 4\sqrt{1+3} = 6 - 8 = -2$ $m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-2 - 2}{1 - (-2)} = \boxed{\frac{-4}{3}}$
<p>8) What is the vertical stretch of $f(x)$? Factor of 4 also has a flip</p>	<p>9) Describe the vertical shift of $f(x)$? $(h, k) = (-3, 6)$</p> $f(x) = -4\sqrt{x+3} + 6$ $\boxed{\text{up } 6}$	<p>10) Describe the horizontal shift of $f(x)$? $\boxed{\text{Left } 3}$</p>
<p>11) Is $f(x)$ decreasing faster than $h(x) = -2\sqrt{x+1}$ as x approaches infinity? Yes</p>	<p>12) If $g(x) = 6$, then what is the solution to $f(x) - g(x) = 0$?</p> $f(x) = g(x) \quad +g(x) \quad +g(x)$ $6 - 4\sqrt{x+3} = 6$ $-4\sqrt{x+3} = 0$ $\sqrt{x+3} = 0$ $x+3 = 0$ $\boxed{x = -3}$	<p>13) Find the value of $f(-5)$.</p> $f(-5) = 6 - 4\sqrt{-5+3}$ $f(-5) = 6 - 4\sqrt{-2}$ $\boxed{\text{undefined}}$

14) Circle all of the following values that are irrational.

$\sqrt{100}$	$\frac{\sqrt{3}}{\sqrt{3}}$	$\sqrt{63}$	$\frac{9}{11}$	π^2	$0.\overline{45}$	$\frac{\sqrt{64}}{7}$	$5 + \sqrt{10}$
$\frac{5}{7} + 9$	$\sqrt{4} - \sqrt{27}$	$\sqrt{5} \cdot \sqrt{10}$	$\sqrt{8} \cdot 3\sqrt{25}$	$\frac{\sqrt{8}}{8}$	$\sqrt{6} \cdot \sqrt{6}$	$\sqrt[3]{25} \cdot \sqrt{5}$	$\frac{\sqrt{64}}{\sqrt{8}}$

Use the following graph to answer the following questions.

	<p>15) The graph shows a cubic equation $y = f(x)$ and a linear equation $y = g(x)$. What is the solution to the equation $g(x) - f(x) = 0$?</p> $g(x) - f(x) = 0$ $+f(x) \quad +f(x)$ $g(x) = f(x) \quad \boxed{x=1}$	<p>16) Write the equation for $f(x)$.</p> $f(x) = 2\sqrt[3]{x+1}$	<p>17) Is it possible for the ordered pair $(-9, -2)$ to be a solution for $f(x)$?</p> <p style="text-align: center; color: red; font-size: 1.5em;">NO</p>
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