

Circuit Training - The Rational Function

Name Key

Directions: Begin in cell #1. Do the work necessary to answer the question. Circle your answer, then search for it and call that cell #2. Proceed in this manner until you complete the circuit. A calculator is not needed to do any of these problems.

<p>Answer: -9 # <u>1</u> Given $f(x) = \frac{x-5}{x+2}$, find $f(3)$.</p> <p><u>-2/5</u></p>	<p>Answer: 0 # <u>12</u> What is the range of the rational function $y = \frac{2}{x-3}$?</p> <p>$(-\infty, 0) \cup (0, \infty)$</p>
<p>Answer: -4 # <u>24</u> For the function $f(x) = \frac{x-5}{x+2}$, solve $f(x) = 2$.</p> <p>$x = -9$ ☺</p>	<p>Answer: $-\frac{5}{5}$ # <u>3</u> What is (are) the x-intercept(s) of the function $f(x) = \frac{x-5}{x+2}$?</p> <p>$(5, 0)$</p>
<p>Answer: $\frac{4}{5}$ # <u>22</u> What is the domain of the function $g(x) = \frac{2x-3}{\sqrt{2x-6}}$?</p> <p>$x > 3$</p>	<p>Answer: $\frac{3}{2}$ # <u>8</u> How many vertical asymptotes does the rational function $y = \frac{x+1}{x^2-7}$ have?</p> <p>2 (if there are no vertical asymptotes, look for 0)</p>
<p>Answer: $\frac{2}{5}$ # <u>2</u> Given $g(x) = \frac{3x^2+1}{x-4}$, find $g(-1)$.</p> <p><u>-4/5</u></p>	<p>Answer: 1 # <u>14</u> Which x-value is not in the domain of $p(x) = \frac{3x-5}{2x^2+x}$?</p> <p>choices: $\frac{6}{5}, -4, \left(-\frac{1}{2}\right)$</p>
<p>Answer: $y = 5x - 2$ # <u>18</u> List the equations of the asymptotes for the rational function $y = \frac{2x^2+5x-3}{x^2-2x-15}$.</p> <p>$y = 2, x = 5$</p>	<p>Answer: $y = 0, x = 5$ # <u>16</u> List the equations of the vertical and/or horizontal asymptotes for the rational function $y = \frac{x^3+8}{x+2}$.</p> <p>N/A</p>
<p>Answer: undefined # <u>5</u> What is the y-intercept of the function $f(x) = \frac{x-5}{x+2}$?</p> <p>$(0, -5/2)$</p>	<p>Answer: $(-\infty, 3) \cup (3, \infty)$ # <u>11</u> What is the equation of the horizontal asymptote to the graph of $y = \frac{2}{x-3}$?</p> <p>$y = 0$</p>

<p>Answer: $-\frac{5}{2}$</p> <p># <u>6</u> What is the equation of the vertical asymptote for the function $p(x) = \frac{3x+4}{2x-1}$?</p> <p>$x = \underline{1/2}$</p>	<p>Answer: $(-\infty, 0) \cup (0, \infty)$</p> <p># <u>13</u> How many vertical asymptotes does $y = \frac{x+5}{x^2-25}$ have?</p> <p><u>1</u></p> <p>(if there are no vertical asymptotes, look for 0)</p>
<p>Answer: $(-\infty, \infty)$</p> <p># <u>20</u> The function $y = \frac{ x+2 }{x+3}$ is not defined for which x-value(s)?</p> <p>choices: <u>0</u> or 3</p>	<p>Answer: there are none</p> <p># <u>17</u> The rational function $f(x) = \frac{15x^2-6x+1}{3x}$ has a "slant" or "oblique" asymptote. What is its equation?</p> <p>$y = 5x - 2$</p>
<p>Answer: 2</p> <p># <u>9</u> How many vertical asymptotes does the function $y = \frac{1}{x^2-x}$ have?</p> <p><u>3</u></p> <p>(if there are no vertical asymptotes, look for 0)</p>	<p>Answer: $(3, \infty)$</p> <p># <u>23</u> Solve $f(x) = 0$ given $f(x) = \frac{16-x^2}{2x-8}$.</p> <p>$x = -4$</p>
<p>Answer: $-\frac{1}{2}$</p> <p># <u>15</u> List the equations of the vertical and/or horizontal asymptotes for the rational function $y = \frac{x+5}{x^2-25}$.</p> <p>$y = 0, x = 5$</p>	<p>Answer: 5</p> <p># <u>4</u> Determine $h(3)$ for $h(x) = \frac{x+3}{x^2-9}$.</p> <p>undefined</p>
<p>Answer: -3</p> <p># <u>21</u> As the value of x get very large (i.e. approaches ∞) for the function $y = \frac{\sqrt{36x^2-1}}{5x+2}$, what value does y approach?</p> <p><u>6/5</u></p>	<p>Answer: $x = 5, y = 2$</p> <p># <u>19</u> What is the domain of $y = \frac{3}{x^2+1}$?</p> <p>\mathbb{R}</p>
<p>Answer: $\frac{1}{2}$</p> <p># <u>7</u> What is the equation of the horizontal asymptote for the function $p(x) = \frac{3x+4}{2x-1}$?</p> <p>$y = \underline{3/2}$</p>	<p>Answer: 3</p> <p># <u>10</u> What is the domain of $y = \frac{2}{x-3}$?</p> <p>$(-\infty, 3) \cup (3, \infty)$</p>