

Unit 2 Review Stations

Station	Answer(s)
A	<p>1. $\frac{(x-4)(x+1)}{(x+2)^2}$, $x \neq -2, -1, \frac{3}{2}, 4$ 2. $\frac{2x-11}{(x-5)(x+5)(x-2)}$, $x \neq \pm 5, 2$</p> <p>3. $\frac{5}{4}$, $x \neq -3, -1, 2$</p>
B	<p>1.a) $D = \{x \in \mathbb{R} \mid x \neq 2\}$ and $R = \{y \in \mathbb{R} \mid y \neq 3\}$ b) $D = \{x \in \mathbb{R} \mid x \geq \frac{1}{2}\}$ and $R = \{y \in \mathbb{R} \mid y \leq 0\}$ c) $D = \{x \in \mathbb{R}\}$ and $R = \{y \in \mathbb{R}\}$</p> <p>2. $\{x \in \mathbb{R} \mid x > 6\}$</p>
C	<p>1.a) Invariant pts lie on the x-axis, \therefore x-intercepts b) Invariant pts have a y-coord. of zero. \therefore x-int. c) Invariant points lie on the line of reflection, $y=x$. \therefore any pt. that has x-coord = y-coord.</p> <p>2.a) ① Reflection in the x-axis. ② Horizontal compression by a factor of 2. ③ Horizontal translation 3 units right. ④ Vertical translation 4 units up.</p> <p>b) $f(x) = 7(-(x+3))^2 - 5$</p> <p>c) $y = -2f\left(\frac{1}{4}(x-6)\right)$</p>

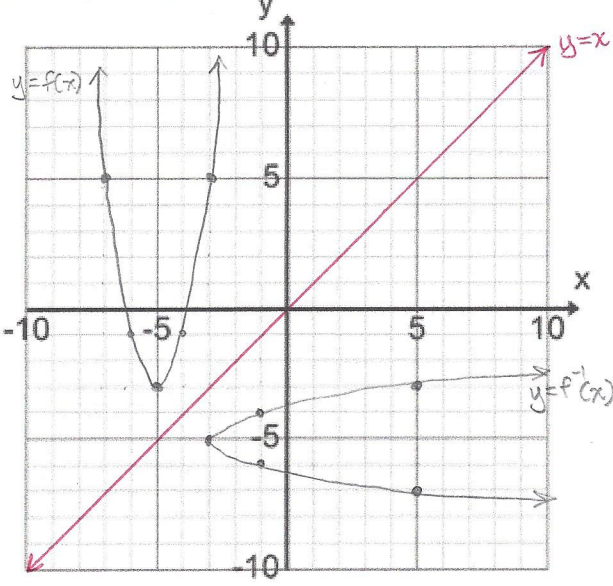
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D	<p>1. $g(x) = \frac{1}{2} f(-(x-3)) - 4$ V.C. by 2 reflect in y-axis 3 right, 4 down</p> <p>2. $h(x) = -f(2(x+3)) + 2$ reflect in x-axis H.C. by 2 3 left, 2 up.</p>
E	<p>1. $f(x) = -\frac{1}{2} \left \frac{1}{3}(x+3) \right$</p> <ul style="list-style-type: none"> • reflect in x-axis. • V.C. by 2 • H.S. by 3 • H.T. 3 left <p>$y = x$ is base fn.</p> <p>$(x, y) \rightarrow (3x-3, -\frac{y}{2})$</p> <p>$(0, 0) \rightarrow (-3, 0)$ $(1, 1) \rightarrow (0, -0.5)$ $(2, 2) \rightarrow (3, -1)$</p>

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	<p>2. $f(x) = \sqrt{6-2x} - 4$ $= \sqrt{-2x+6} - 4$ $= \sqrt{-2(x-3)} - 4$</p> <ul style="list-style-type: none"> • reflect in y-axis. • H.C. by 2 • H.T. right 3 $(x,y) \rightarrow (\frac{-x}{2} + 3, y-4)$ • V.T. down 4 <p>base ftn. $y = \sqrt{x}$</p> <p>$(0,0) \rightarrow (3, -4)$ $(1,1) \rightarrow (2.5, -3)$ $(4,2) \rightarrow (1, -2)$ $(9,3) \rightarrow (-1.5, -1)$ $(16,4) \rightarrow (-5, 0)$</p>
E	<p>3.</p> <p>$f(x) = \frac{-2}{x+3} + 2$</p> <ul style="list-style-type: none"> • reflect in x-axis. • V.S. by 2. • H.T. left 3. • V.T. up 2. <p>base ftn $y = \frac{1}{x}$</p> <p>$(x,y) \rightarrow (x-3, -2y+2)$</p> <p>$x=0 \rightarrow x=-3$ $y=0 \rightarrow y=2$</p>

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F	<p>1.a)</p>  <p> $f(x) = 2(x+5)^2 - 3$ vertex $(-5, -3)$ $a = 2$ </p> <p> $(x, y) \rightarrow (y, x)$ $(-7, 5) \rightarrow (5, -7)$ $(-6, -1) \rightarrow (-1, -6)$ $(-5, -3) \rightarrow (-3, -5)$ $(-4, -1) \rightarrow (-1, -4)$ $(-3, 5) \rightarrow (5, -3)$ </p> <p>b) $f(x) = 2(x+5)^2 - 3, x \geq -5$ or $x \leq -5$.</p> <p>2.a) $f^{-1}(x) = \frac{-2}{x} - 3, x \neq -3, 0$ b) $f^{-1}(x) = (x-5)^2 + 4, x \geq 5$</p>
G	<p>Simplified expression is: $\frac{x+1}{x-4} = \frac{x+1}{x-4}$</p> <p>$\therefore$ true for <u>all</u> values of x, except for restrictions i.e. $x = -\frac{3}{4}, \frac{1}{2}, 4, 0$</p>