

1a  $f(-x) = (-x)^3 - 2(-x)$   
 $f(-x) = -x^3 + 2x$   
 $f(-x) = -f(x)$   
 Odd

1b  $f(-x) = 4(-x)^2 + 2(-x)$   
 $f(-x) = 4x^2 - 2x$   
 neither

1c  $f(-x) = 3(-x)^2 + 4$   
 $f(-x) = 3x^2 + 4$   
 $f(-x) = f(x)$   
 even

2a  $\frac{[6-5(x+h)] - [6-5x]}{h}$   
 $\frac{6-5x-5h-6+5x}{h}$   
 $\frac{-5h}{h} = \boxed{-5}$

2b  $\frac{[(x+h)^2 + 4(x+h) - 2] - [x^2 + 4x - 2]}{h}$   
 $\frac{x^2 + 2xh + h^2 + 4x + 4h - 2 - x^2 - 4x + 2}{h}$   
 $\frac{2xh + h^2 + 4h}{h} = \frac{h(2x+h+4)}{h}$   
 $2x+h+4$

3a Domain  $\frac{5-3x \geq 0}{-3}$   
 $\frac{-3x \geq -5}{-3}$   
 $x \leq 5/3$   
 $\boxed{(-\infty, 5/3]}$   
 Range  $\boxed{[0, \infty)}$

3b Domain  $3x-12=0$   
 $3x=12$   
 $x=4$   
 $\mathbb{R}$  except  $x=4$   $\boxed{(-\infty, 4) \cup (4, \infty)}$   
 Range  $\boxed{(-\infty, 0) \cup (0, \infty)}$   
 $\mathbb{R}$  except  $y=0$

3c Domain  $\frac{x-7 > 0}{+7 \quad +7}$   
 $x > 7$   
 $\boxed{[7, \infty)}$

Range  $y > 0$   $\boxed{(0, \infty)}$

<p>4a Domain <math>(-8, 9.5]</math> Range <math>[-7, 5.5]</math></p>	<p>4b Domain <math>(-\infty, \infty)</math> Range <math>(-\infty, 8]</math></p>
<p>5a Maximum <math>(-2.5, 9.25)</math> Minimum - none Zeros <math>x = -5.5, x = .541</math> Increasing <math>(-\infty, -2.5)</math> Decreasing <math>(-2.5, \infty)</math></p>	<p>5b Maximum <math>(-2.666, 9.481)</math> Minimum <math>(0, 0)</math> Zeros <math>x = -4</math> Increasing <math>(-\infty, -2.666)</math> Decreasing <math>(-2.666, 0)</math></p>
<p>6a <math>-\frac{1}{3}(x+7)^3 = g(x)</math></p>	<p>6b <math>g(x) = 4 x-6  - 2</math></p>
<p>6c <math>g(x) = -(x+4)^2 + 2</math></p>	<p>6d <math>g(x) = \sqrt{-x} + 4.5</math></p>
<p>7a</p> <ul style="list-style-type: none"> <li>- left 2 units</li> <li>- stretch of 2</li> <li>- reflection over x-axis</li> <li>- down 1 unit</li> </ul>	<p>7b</p> <ul style="list-style-type: none"> <li>- right 1 unit</li> <li>- shrink of <math>\frac{1}{2}</math></li> <li>- up 8 units</li> </ul>

<p>8a <math>m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-7 - 5}{3 - -3} = \frac{-12}{6} =</math> <math>(-2)</math></p>	<p>8b <math>m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-2 - -6}{-2 - 0} = \frac{4}{-2} = (-2)</math></p>
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<p>9a <math>f(2x+3) = 3(2x+3)+5</math> <math>= 6x+9+5</math> <math>f(2x+3) = 6x+14</math></p>	<p>9b <math>f(x-2) = (x-2)^2 - 3(x-2) + 4</math> <math>f(x-2) = x^2 - 2x - 2x + 4 - 3x + 2 + 4</math> <math>f(x-2) = x^2 - 7x + 14</math></p>
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<p><math>3y - 6x + 7 = 0</math> <math>+6x - 7 + 6x - 7</math> <math>\frac{3y}{3} = \frac{6x}{3} - \frac{7}{3}</math> <math>y = 2x - 7/3</math> <math>m = 2</math></p>	<p><math>y = mx + b</math> <math>y = 2x + b</math> <math>b = 2(-8) + b</math> <math>b = -16 + b</math> <math>22 = b</math> <math>y = 2x + 22</math></p>
<p>10a <math>y = 2x + 22</math></p>	<p><math>3y + 6x + 7 = 0</math> <math>-6x - 7 + 6x - 7</math> <math>\frac{3y}{3} = \frac{-6x}{3} - \frac{7}{3}</math> <math>y = -2x - 7/3</math> <math>m = -2 \rightarrow m = -\frac{1}{2}</math></p>

<p><math>y = 2x + 22</math> <math>-2x - 22</math> <math>y - 2x - 22 = 0</math></p>	<p><math>y - b = -\frac{1}{2}(x + 8)</math> <math>y - b = -\frac{1}{2}x - 4</math> <math>+4 \quad +4</math> <math>2(y - 2) = (-\frac{1}{2}x)^2</math> <math>2y - 4 = x</math> <math>-x \quad -x</math> 10c <math>2y - x - 4 = 0</math></p>
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