

ANSWERS

PreCalculus Ch. 1 Review

① $f(-3) = 10(-3)^2 - \sqrt{-3(-3)} = 90 - \sqrt{9} = \boxed{87}$

② $x = (y+7)^3 - 4$
 $x+4 = (y+7)^3$
 $\sqrt[3]{x+4} = y+7$
 $f^{-1}(x) = \sqrt[3]{x+4} - 7$

③ yes

$x = 5y - 1$
 $x+1 = 5y$
 $y = \frac{x+1}{5}$

$f(\frac{x+1}{5}) = 5(\frac{x+1}{5}) - 1 = x$
 $g(5x-1) = \frac{1}{5}(5x-1) + \frac{1}{5}$
 $= x - \frac{1}{5} + \frac{1}{5} = x$

④ Refl. over x-axis, vert. stretch, left 7 units, up 15 units

⑤ $C(x) = 8x + 34$ $C(45) = \$394$ $8x + 34 = 439$ 50 shirts

⑥ odd ① $81 - x^2 \geq 0$ Domain $[-9, 9]$ Range $[0, 9]$

$81 \geq x^2$ $x \leq 9, x \geq -9$ $-9 \leq x \leq 9$ $0 \leq y \leq 9$

⑧ $y = x$ ⑨ $f(2x^2 - 4) = 2 + 6(2x^2 - 4) = 2 + 12x^2 - 24 = 12x^2 - 22$

⑩ $g(2+6x) = 2(2+6x)^2 - 4 = 2(4 + 24x + 36x^2) - 4 = 8 + 48x + 72x^2 - 4 = 72x^2 + 48x + 4$

⑩ $(x+9)(x-4)$ ⑪ $D(-\infty, \infty)$ ⑫  ⑬ $x = \frac{2}{3}, y = \frac{5}{3}$

All real #'s, $x \neq -9, x \neq 4$ $R(-\infty, 5]$

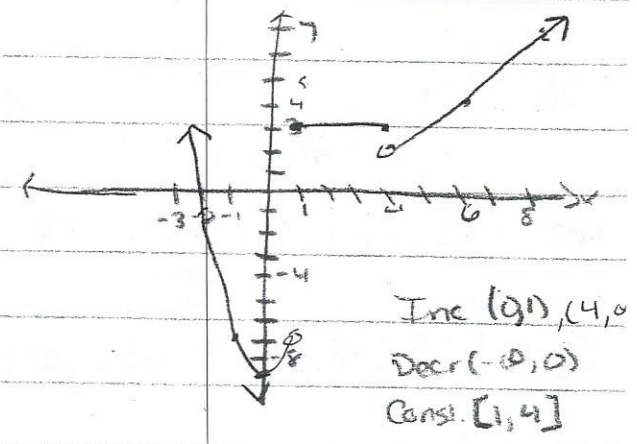
⑭ Rel max $(-2.87, 99.32)$ ⑮ $2x^3 - 4x^2 + 3x - 2 + (3 + 5x + x^2) = 2x^3 - 3x^2 + 8x - 5$

min $(1.32, -10.78)$

⑯ $f(x) = (x+6)^3 - 5$

⑰ $f(x) = \begin{cases} 2x^2 - 9 & x < 1 \\ 3 & 1 \leq x \leq 4 \\ \frac{5}{4}x - 3 & x > 4 \end{cases}$

$f(1) = 2 - 9 = -7$ $f(4) = 5 - 3 = 2$
 $f(0) = -9$ $f(6) = 4.5$
 $f(-1) = -7$ $f(8) = 7$
 $f(-2) = -1$



⑱ (a) no (b) no (c) no (d) yes (e) yes

⑲ $(-\infty, \infty)$ $R[0, \infty)$

⑳ Refl. over y-axis

㉑ Incr $(-3, 2)$

㉒ $f(7) + g(7) = 6(7) + 7 = \boxed{127}$

Decr $(-\infty, -3), (2, \infty)$

Const. $[-3, 2]$

Skipped 23