

Answers to Math Placement D-Test Sample Problems

(1) $\frac{a^3}{4b}$

(2) (a) $x = 3$

(b) $x = \frac{7}{4}$

(c) $x = 4, -4, 6, -6$

(d) $-\frac{1}{3} < x < 1$

(e) $x = 5$

(f) $-\frac{2}{3} \leq x \leq \frac{3}{2}$

(g) $x < 2$

(3) $4\sqrt{5}$

(4) (a) Find $g[f(x)] = \frac{3 + 3x}{x + 2}, x \geq -1$

(b) $\{y : 0 \leq y < 3\}$

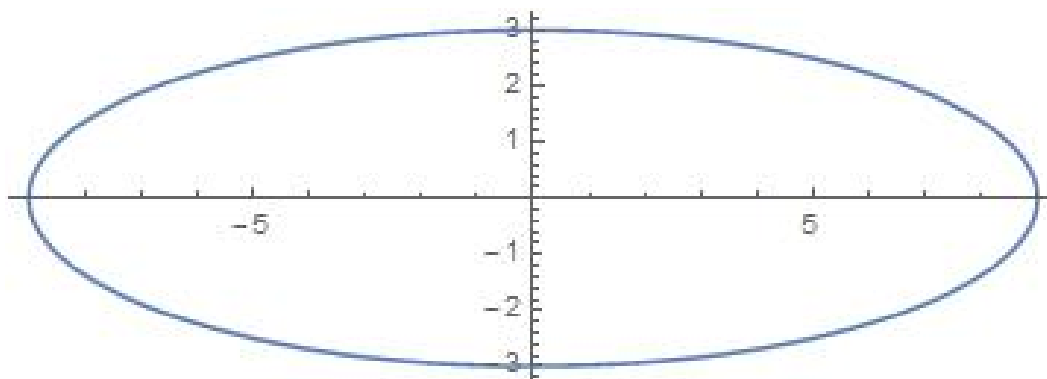
(c) $f^{-1}(x) = x^2 - 1$

domain of f^{-1} is $\{x : x \geq 0\}$

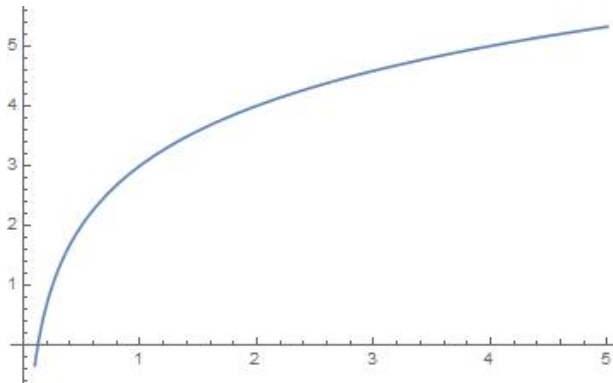
g^{-1} does not exist

(5) Sketch the graphs of the following equations.

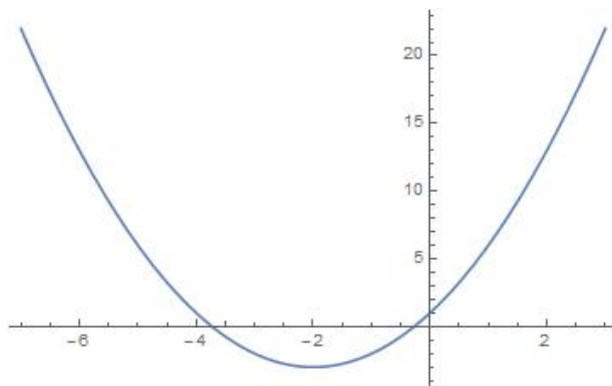
(a) $x^2 + 9y^2 = 81$



(b) $y = \log_2 8x$



(c) $y = x^2 + 4x + 1$ (label vertex)



(6) 0.756

(7) Center (3,-4), $r = 5$

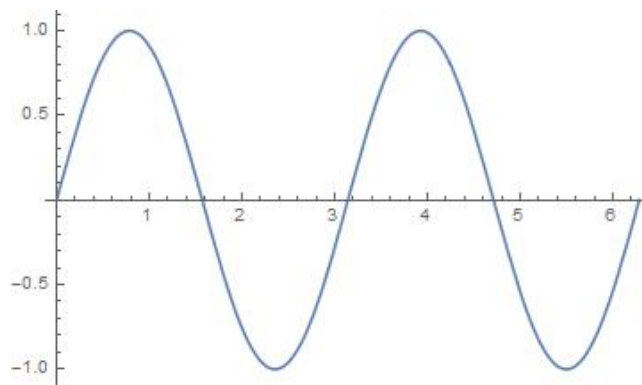
(8) 1

(9) $\frac{-7}{\sqrt{53}}$

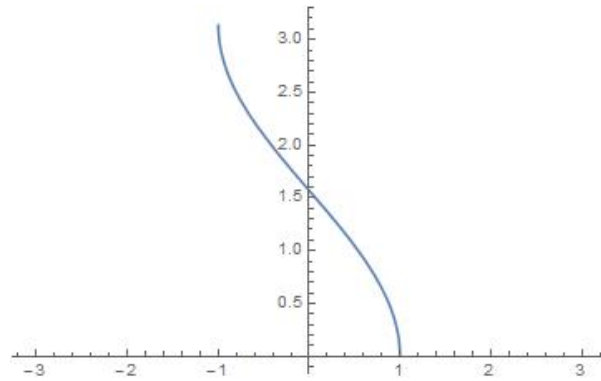
(10) 0

(11) Graph these functions. Label your graphs carefully.

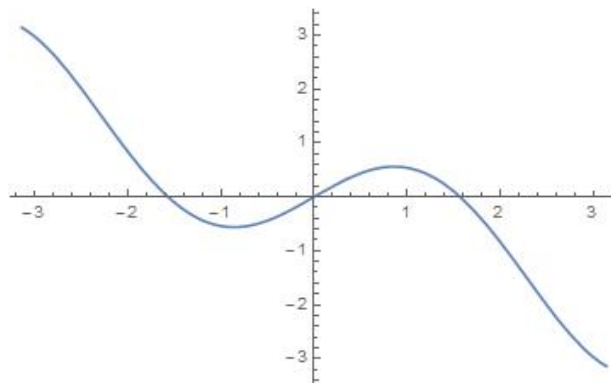
(a) $y = \sin(2x)$, $0 \leq x \leq 2\pi$



(b) $y = \cos^{-1}(x)$ or $y = \arccos(x)$



(c) $y = x \cos(x)$, $-\pi \leq x \leq \pi$



(12) $\sec \theta$

(13) 60 feet

(14) (a) $\sqrt{13}$

(b) $9 - 7i$

(c) $\frac{3 - 11i}{10}$

(15) $r = 8$, $\theta = \frac{\pi}{2} \pm 2k\pi$

(16) $n = 12$