

1. (a) F
- (b) F
- (c) T
- (d) T
- (e) F
- (f) F (g) F
- (h) F
- (i) F
- (j) T(k)T
- (l) F(m)T
- (n) F
- (o) T (p) F (q) T(r)T(s)F(t)F

2.

(a) $y = x$

(b) $-\frac{11\pi}{6}$

(c) 660°

(d) $\frac{8}{\pi}$ meters

(e) $5, \frac{2\pi}{3}, -\frac{\pi}{3}$

(f)

$$\sin \theta = \frac{\text{opp}}{\text{hyp}}, \cos \theta = \frac{\text{adj}}{\text{hyp}}, \tan \theta = \frac{\text{opp}}{\text{adj}}, \csc \theta = \frac{\text{hyp}}{\text{opp}}, \sec \theta = \frac{\text{hyp}}{\text{adj}}$$

(g) $\frac{\sqrt{3}}{2}$

(h) $-\frac{1}{2}$

(i) 1

(j) $-1 \leq x \leq 1, \quad 0 \leq y \leq \pi$

(k) $-\frac{\pi}{4}$

(l) $\frac{3\pi}{4}$

(m) $\frac{5\pi}{6}$

(n) $-\frac{\pi}{6}$

(o) $\frac{4}{5}$

(p) $\frac{1}{\tan x}$

(q) $\frac{\cos x}{\sin x}$ (r) $1 + \tan^2 x$

(s) $\sin x \cos y + \cos x \sin y$

(t) $\cos x \cos y + \sin x \sin y$

$$(u) \cos^2 x - \sin^2 x = 2 \cos^2 x - 1 = 1 - 2 \sin^2 x \quad (v) \pm \sqrt{\frac{1 - \cos x}{2}}$$

$$(w) \frac{\pi}{3} + k\pi, \quad k \text{ is an integer}$$

$$(x) y = -2$$

$$(y) 3^x = 8$$

$$(z) \ln x$$

$$(aa) x$$

$$(gg) 2 \log x + \log y - \frac{1}{2} \log(x + 1)$$

3.

$$(a) \frac{2x-1}{(x-1)^2}$$

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$$(b) \frac{x(x+3)}{(x+4)(x+1)}$$

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$$(a) x = \pm 2, \frac{3}{2}$$

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$$(b) x = -6, 3 \quad (c) x = k\pi, \quad x = \frac{\pi}{6} + 2k\pi, \quad x = \frac{5\pi}{6} + 2k\pi, \quad x = \frac{\pi}{6} + 2k\pi, \quad x = \frac{5\pi}{6} + 2k\pi, \quad k \text{ is an integer}$$

$$(c) x = k\pi, \quad x = \frac{\pi}{6} + 2k\pi, \quad x = \frac{5\pi}{6} + 2k\pi, \quad k \text{ is an integer}$$

$$(d) x = \frac{3\pi}{2} + 2k\pi, \quad x = \frac{\pi}{6} + 2k\pi, \quad x = \frac{5\pi}{6} + 2k\pi, \quad k \text{ is an integer}$$

$$(e) x = \frac{5 + \log_2 7}{3} \quad (\text{may})$$

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$$4. c) x = k\pi, \quad x$$

$$2k\pi, \quad x = \frac{5\pi}{6}$$

$$(bb) x$$

$$(cc) 0$$

$$(dd) 1 \quad (ee) 5$$

$$(ff) 7$$

$$(hh) \ln \frac{x^2 - y^2}{x^3}$$

x

$$(cc) 0 \quad (dd) 1 \quad (ee) 5$$

$$(f) 7,$$

4. (a) x vary depending on the base of the log you choose.)

$$(f) x = -15$$

$$(g) x = 1$$

(h) $x = 3, x = -4$ is an extraneous solution. $x = 1 = -4$ is an

extraneous solution.

5.

6.

(a) $[1, 4]$

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(b) $(-\infty - 1) \cup (\frac{7}{3}, \infty)$

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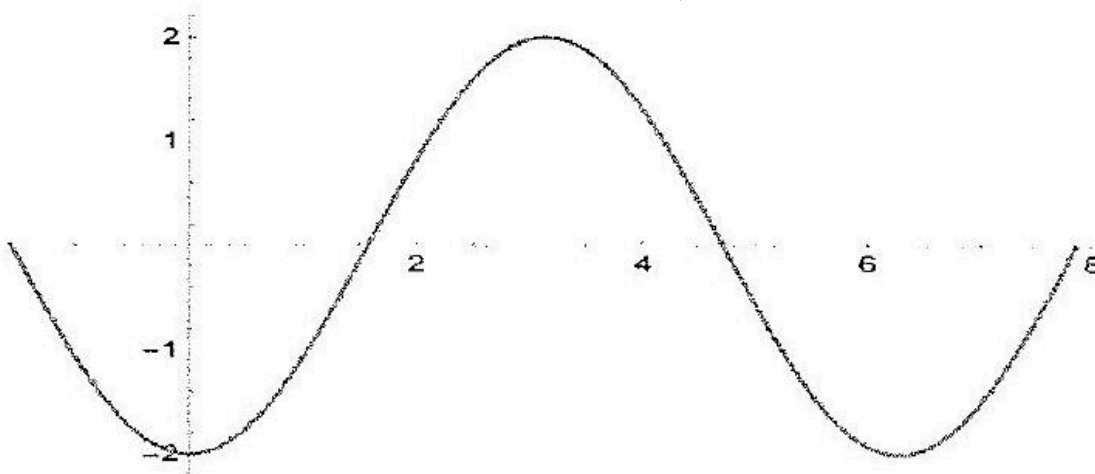
(a) $x = \frac{5}{\sin 70^\circ}$

(b) $x = \sqrt{210^2 + 100^2 - 2(210)(100) \cos 40^\circ}$

(c) $x = \sin^{-1} \left(\frac{4 \sin 80^\circ}{5} \right)$

7. $y = 2 \sin \left(x - \frac{\pi}{2} \right)$ on $\left[-\frac{\pi}{2}, \frac{5\pi}{2} \right]$

Amplitude: 2 Period: 2π Horizontal Shift: $\pi/2$



8. (a) $\frac{1}{2}, \pi, -\frac{\pi}{3}$ (b) $y = -\frac{1}{2} \cos \left[2 \left(x + \frac{\pi}{3} \right) \right]$ (may vary)

9. $x = 200\sqrt{3}$ feet

10. $h = \frac{40 \sin 35^\circ}{\sin 50^\circ}$

11. $\theta = \cos^{-1} \left(\frac{210^2 + 230^2 - 120^2}{(2)(210)(230)} \right)$

12. $\sin 2x = -\frac{3}{5}, \cos 2x = \frac{4}{5}$

13. (a)

$$L = \cos^2 x \csc x - \csc x = \csc x (\cos^2 x - 1) = \csc x (-\sin^2 x) =$$

(b) $L = \frac{1}{1 - \sin^2 x} = \frac{1}{\cos^2 x} = \sec^2 x = 1 + \tan^2 x = R$

14.

$f(x) = 2^x$	#8% $g(x) = 2^{-x}$
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15.

- (a) $f(x) = -\log_3(-x)$,
- (b) $f(x) = \log_3(1 - x)$,
- (c) $f(x) = -\log_3(x + 2)$,
- (d) $f(x) = \log(x - 1)$