

Review - 1

ANSWERS

1. (a) $\left[-\frac{15}{2}, 3\right)$
(b) $-\frac{17}{2}$ and $\frac{23}{2}$
(c) $\left(-\frac{14}{3}, \frac{4}{3}\right)$
(d) $[-3, 3]$
2. (a) 5
(b) $-\frac{4}{3}$
(c) $y = -\frac{4}{3}x - \frac{1}{3}$
3. (a) $y = -4$
(b) $x = 3$
(c) $y = -\frac{1}{2}x - \frac{5}{2}$
(d) $y = -\frac{1}{3}x - 3$
4. (a) $\frac{5\pi}{6}, -\frac{5\pi}{4}$
(b) $-135^\circ, 450^\circ$
(c) $\frac{\sqrt{3}}{2}, 0, -1; 1, -1, \sqrt{3}; -\frac{\pi}{6}, \frac{\pi}{3}, \frac{\pi}{6}; \frac{\sqrt{2}}{2}, \frac{\pi}{6}, 1$
5. (a) (b) (c)
- (d) (e)
6. (a) $f(x) = e^{-x} - 1$

- (b) $f(x) = \frac{1}{5}e^{x+3} - \frac{1}{5}$
 (c) $f(x) = -e^x - 1$
7. (a) $g \circ f = \ln(2 - x)$, domain = $(-\infty, 2)$.
 (b) $h \circ g = \sqrt{\ln x + 1}$, domain = $[e^{-1}, +\infty)$.
 (c) $f \circ h = 2 - \sqrt{x + 1}$, domain = $[-1, +\infty)$.
8. (a) $\frac{2x - 1}{5 - 3x}$
 (b) $\frac{\ln(x - 2)}{3}$
9. (a) 3
 (b) -2
 (c) $\sqrt{5}$
 (d) 2
 (e) 8
10. (a) $\frac{\log_2 5 + 4}{3}$
 (b) $e^{-3} - 5$
 (c) $\frac{1}{\sqrt{3}}$
11. (a) 10
 (b) 1
 (c) $\frac{-1}{6}$
 (d) $+\infty$
 (e) $-\infty$
 (f) does not exist
 (g) 0
 (h) $\frac{2}{5}$
 (i) 0
 (j) $\frac{3}{2}$
 (k) does not exist
12. (a) $\frac{3}{2}$
 (b) 2
13. Use the intermediate value theorem.
14. horizontal: $y = 3$. vertical: $x = 5$ and $x = -7$.