

46. increasing $[-2, -1]$, $[1, \infty)$
decreasing $[-1, 1)$
constant $(-\infty, 2)$

47. $x = -2$ $x = 1$

52. Domain $(-\infty, \infty)$
y-intercept 5
no x-intercepts

53. Domain $[0, \infty)$
y-intercept 2
no x-intercept

54. Domain $(-\infty, 0) \cup (0, \infty)$
no y-intercept
x-intercepts $-1, 1$

55. Domain $(-\infty, 3)$
y-intercept 0
x-intercept 0

56. Domain $(-\infty, -2) \cup (-2, 2) \cup (2, \infty)$
y-intercept -0.75
x-intercept -1.5

57. Domain $[0, 16) \cup (16, \infty)$
y-intercept $\frac{1}{4}$
x-intercept - none

63. Yes
test: $u(v(x))$ should $= x$

65. a) $\frac{x+7}{3}$

b) 4

c) x

d) increasing

70. Same graph shifted right 2, reflected through x-axis and shifted down 1 unit.

85. a) $x^2 \sqrt{1-x}$ domain $(-\infty, 1]$

b) $\frac{x^2}{\sqrt{1-x}}$ domain $(-\infty, 1]$

c) $1-x$ domain $(-\infty, 1]$

d) $\sqrt{1-x^2}$ domain $[-1, 1]$

87. a) $F^{-1}(x) = x^2 + 1$

b) domain of $F \circ F = [1, \infty) = \text{Range of } F^{-1}(x)$
Range of $F(x) = [0, \infty) = \text{Domain of } F^{-1}(x)$

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1. (2, 3)

2. No solution

3. infinitely many solutions

4. (3, -1, -2)

5. (2, 0, -1)

6. (2, -1)

28. (2.54, 2.15)

55. 40g mix A 60g mix B 30g mix C