2) y, x

4) differentiation from first principles

6) no 8) no 10) D

12) $x^2 - y = 9$
$x^2 = 9 + y$
$y = x^2 - 9$
$x = \sqrt{9+y}$
= yes

14) $y = \sqrt{x+5}$
$y^2 = x + 5$
$x = y^2 - 5$ = yes

16) $|y| = 4 - x$
= no

18) $x - 1 = 0$
= no

20) $V(r) = \frac{4}{3}\pi r^3$
= (b) $V(\frac{3}{2})$

22) $h(t) = -t^2 + t + 1$
= (a) $h(2)$

24) $f(x) = \sqrt{x+8} + 2$
$(x-2)^2 = x + 8$
= a (f)(-8)

26) $q(t) = (2t^2 + 3)\,|t^2$
= c $q(-x)$

28) $f(x) = |x| + 4$
= a f(2)

30) $f(x) = -3x - 3 \quad x < -1$
$x^2 + 2x - 1 \quad x >, -1$
= (b) f(-1)

32)

| | | | | |
|---|---|---|---|---|
| -5 | -4 | -3 | -2 | -1 |
| -1 | $-\frac{1}{2}$ | 0 | $\frac{1}{2}$ | 1 |

34)

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| -2 | -1 | 0 | 1 | 2 |

36) $f(x) = 4x + 6$
$4x + 6 = 0$
$4x = -6$
$x = -6/4$
$x = -3/2$

38) $f(x) = \frac{12 - x^2}{8}$
$12 - x^2 = 0$
$x^2 = 12$
$x = \pm\sqrt{12}$

40) $x^2 - 6x - 16 = f(x)$
$x^2 - 6x - 16 = 0$
$x = 8$ or $x = -2$

42) $x^3 - x^2 - 3x + 3 = f(x)$
$x^3 - x^2 - 3x + 3 = 0$
$x = -1.73$ or $x = 1.73$

44) $f(x) = g(x)$
$x^2 + 2x + 1 = 5x + 19$
$x^2 - 3x - 18 = 0$
$x = 6$ or $x = -3$

46) $f(x) = g(x)$
$\sqrt{x} - 4 = 2 - x$
$\sqrt{x} = 6 - x$
$x = (-x + 6)^2$
$-x^2 - 12x + 36 = x$
$-x^2 - 13x + 36 = 0$
$x^2 + 13x - 36 = 0$
$x = 2.345$ or $x = -15.3$

48) $g(x) = 1 - 2x^2$
$g(0) = 1 - 2x^2$
$-2x^2 = -1$
$x^2 = 1/2$
$x = \pm\sqrt{1/2}$

50) $f(t) = \sqrt[3]{t+4}$
$0 = t + 4$
$t = -4$

52) $h(x) = \frac{6}{x^2 4x}$
$x = \frac{6}{x^2 - 4x}$
$x^3 - 4x^2 = 6$
$x^3 - 4x^2 - 6 = 0$
$x = 4.32$ or $x = -0.16$

54) $f(x) = \frac{\sqrt{x+6}}{6+x}$
$x(x+6) = \sqrt{x+6}$
$x^2 + 6x = \sqrt{x+6}$
$(x^2 + 6x)^2 = x + 6$

56) $\frac{x+2}{\sqrt{x-10}}$
$(x+2)^2 = x(x-10)$
$x^2 + 4x + 4 = x^2 - 10x$
$14x = 4$
$x = 4/14$
$x = 2/7$