PRINTABLE VERSION

Quiz 2

You scored 100 out of 100

Question 1

Your answer is CORRECT.

Find the linear function f that satisfies the given conditions:

passes through (-6, 4) and (5, -6)

$x_1\ y_1\ \ x_2\ y_2$

Slope: $\frac{\Delta y}{\Delta x} = \frac{-6-4}{5-(-6)} = \frac{-10}{11}$

a) $f(x) = -\frac{10}{11}x - \frac{104}{11}$

$y - 4 = \frac{-10}{11}(x+6)$

b) $f(x) = -\frac{10}{11}x + 4$

$y = \frac{-10}{11}x - \frac{60}{11} + 4$

c) $f(x) = -\frac{11}{10}x + \frac{53}{5}$

d) $f(x) = -\frac{10}{11}x - \frac{16}{11}$

$y = \frac{-10}{11}x - \frac{60}{11} + \frac{44}{11}$

e) $f(x) = -\frac{11}{10}x - 4$

$y = \frac{-10}{11}x - \frac{16}{11}$

f) None of the above.

Question 2

Your answer is CORRECT.

Complete the square to write the equation in the standard form $f(x) = a(x - h)^2 + k$.

$$f(x) = 3x^2 + 30x + 81$$

a) $f(x) = 3(x-5)^2 + 31$

$f(x) = 3(x^2+10x) + 81$

b) $f(x) = 3(x+5)^2 - 6$

$f(x) = 3(x^2+10x+\left(\frac{10}{2}\right)^2) + 81 - 3\left(\frac{10}{2}\right)^2$

$f(x) = 3(x^2+10x+5^2) + 81 - 75$

c) $f(x) = 3(x+5)^2 + 31$

d) $f(x) = 3(x-10)^2 + 6$

e) $f(x) = 3(x+5)^2 + 6$

f) None of the above.

$f(x) = 3(x+5)^2 + 6$

Question 3

Your answer is CORRECT.

y-intercept : $x = 0$

Given

$$f(x) = (2-x)(x-5)^3$$

Find the y-intercept.

$f(0) = (2-0)(0-5)^3$

$f(0) = 2(-125)$

$f(0) = -250$ $(0, -250)$

a) (0, 250)

b) (0, -250)

c) (0, 2)

d) (0, 10)

e) (0, -10)

f) None of the above.

Question 4

Your answer is CORRECT.

$a = -4$

$b = -48$

$c = -139$

State the coordinates of the vertex of the parabola.

$$f(x) = -4x^2 - 48x - 139$$

a) (−6, −5)

b) (6, 5)

c) (0, 5)

d) (24, 5)

Vertex Formula : $\left(\frac{-b}{2a}, f\left(\frac{-b}{2a}\right)\right)$

$= \left(\frac{48}{2(-4)}, f\left(\frac{48}{-8}\right)\right) = (-6, f(-6))$

e) (−6, 5) $f(-6) = -4(-6^2) - 48(-6) - 139 = 5$

f) None of the above.

Question 5

Your answer is CORRECT. (-5, 7)

Find the linear function $f(x)$ which satisfies $f(-5) = 7$, and has a graph that is parallel to the line

$$3x + y = 9$$

$y = -3x + 9$ ← slope $m = -3$

a) $f(x) = 3x - 22$

b) $f(x) = -3x - 8$

$y - 7 = -3(x + 5)$

$y = -3x - 15 + 7$

$y = -3x - 8$

c) $f(x) = -3x - 21$

d) $f(x) = 3x - 15$

e) $f(x) = -3x + 22$

f) None of the above.

Question 6

Your answer is CORRECT. (1, 5)

Find the linear function $f(x)$ that satisfies $f(1) = 5$, and has a graph that is perpendicular to the line

$$8x - 2y = -3$$

$-2y = -8x - 3$

$y = 4x + \frac{3}{2}$ ← $m_{\perp} = \frac{-1}{4}$

a) $f(x) = 4x + 9$

b) $f(x) = -\frac{1}{4}x + \frac{21}{4}$

$y - 5 = \frac{-1}{4}(x - 1)$

$y = \frac{-1}{4}x + \frac{1}{4} + 5$

$y = \frac{-1}{4}x + \frac{1}{4} + \frac{20}{4}$

$y = \frac{-1}{4}x + \frac{21}{4}$

c) $f(x) = -\frac{1}{4}x + 5$

d) $f(x) = \frac{1}{4}x + \frac{21}{4}$

e) $f(x) = -4x + 9$

f) None of the above.

Question 7

Your answer is CORRECT.

Find the vertex of the quadratic function

$$f(x) = x^2 - 10x + 5$$

a=1 b=-10 c=5

$\left(\frac{-b}{2a}, f\left(\frac{-b}{2a}\right)\right)$

$\left(\frac{10}{2}, f\left(\frac{10}{2}\right)\right) = (5, f(5))$

$f(5) = 5^2 - 10(5) + 5 = 25 - 50 + 5 = -20$

$(5, -20)$

a) (5 , -30)

b) (5 , -20)

c) (-5 , -30)

d) (-5 , -20)

e) (5 , 30)

f) None of the above.

Question 8

Your answer is CORRECT.

Find the vertex of the quadratic function

$$f(x) = 4x^2 - 24x - 10$$

$\left(\frac{-b}{2a}, f\left(\frac{-b}{2a}\right)\right)$

$\left(\frac{24}{8}, f\left(\frac{24}{8}\right)\right) = (3, f(3))$

$f(3) = 4(3^2) - 24(3) - 10 = 36 - 72 - 10 = -46$

$(3, -46)$

a) (-3 , -46)

b) (3 , -6)

c) (4 , 1)

d) (3 , -46)

e) (3 , 26)

f) None of the above.

Question 9

Your answer is CORRECT.

Given the function

$$f(x) = x^2 + 8x - 9$$

positive

min value

Which of the following statements is true?

$\left(\frac{-b}{2a}, f\left(\frac{-b}{2a}\right)\right)$

$\left(\frac{-8}{2}, f\left(\frac{-8}{2}\right)\right) = (-4, f(-4))$

$f(-4) = (-4)^2 + 8(-4) - 9$

$= 16 - 32 - 9 = -25$

a) $f(x)$ has a maximum value. The value is -25.

b) $f(x)$ has a maximum value. The value is 65.

c) $f(x)$ has a minimum value. The value is -25.

d) $f(x)$ has a minimum value. The value is -5.

e) $f(x)$ has a minimum value. The value is -7.

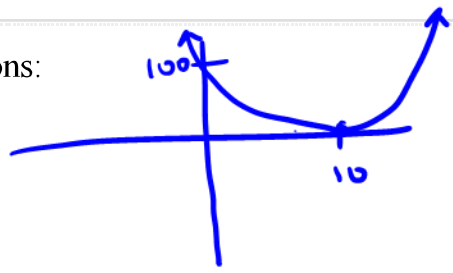
f) None of the above.

Question 10

Your answer is CORRECT.

Find the quadratic function satisfying the following conditions:

- the axis of symmetry is $x = 10$
- the y intercept is (0, 100)
- there is only one x-intercept.



$y = (x-10)^2$

$y = x^2 - 20x + 100$

a) $f(x) = x^2 + 10x + 100$

b) $f(x) = -10x^2 + 100$

c) $f(x) = -x^2 + 20x + 100$

d) $f(x) = x^2 - 20x + 100$

e) $f(x) = 10x^2 + x + 100$

f) None of the above.

Question 11

Your answer is CORRECT.

Find the quadratic function $f(x)$ satisfying:

- the graph passes through the origin
- the vertex is (-5 , 1)

$y = a(x-h)^2 + k$

$y = a(x+5)^2 + 1$ ← (0,0)

$0 = a(5^2) + 1$

$-1 = 25a$

$a = \frac{-1}{25}$

a) $f(x) = \frac{1}{25}x^2 - 5x$

b) $f(x) = -\frac{1}{25}x^2 - \frac{2}{5}x$

c) $f(x) = -\frac{1}{25}x^2 - 10x$

d) $f(x) = -\frac{1}{25}x^2 + \frac{2}{5}x$

e) $f(x) = -\frac{1}{25}x^2 + 2x$

f) None of the above.

$y = \frac{-1}{25}(x+5)^2 + 1$

$y = \frac{-1}{25}(x^2+10x+25) + 1$

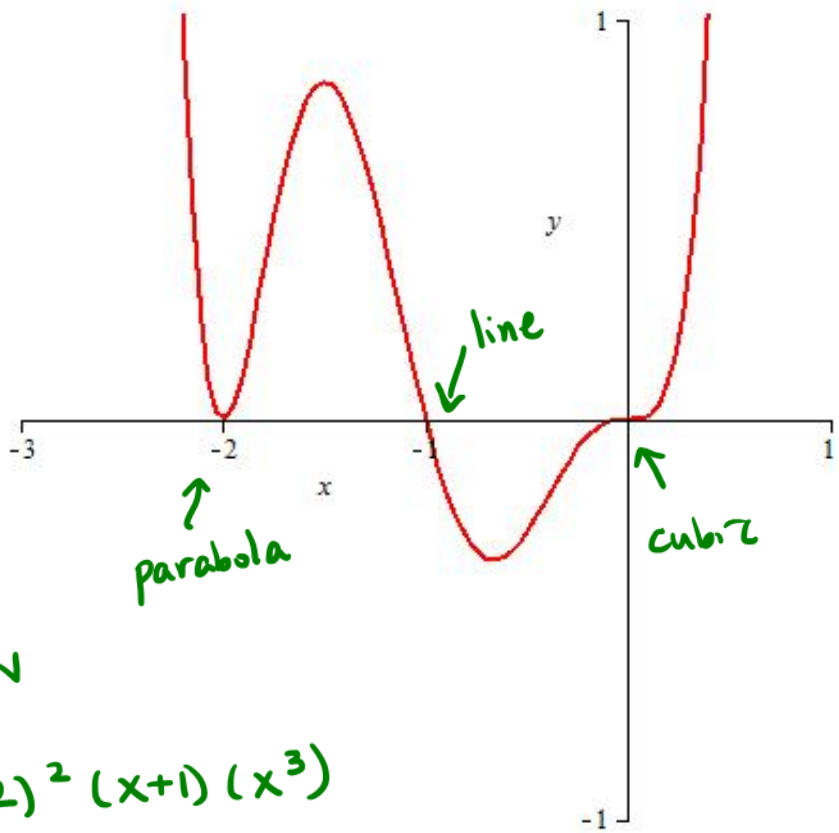
$y = \frac{-1}{25}x^2 - \frac{2x}{5} - 1 + 1$

$y = \frac{-1}{25}x^2 - \frac{2}{5}x$

Question 12

Your answer is CORRECT.

Which of the following functions could represent the graph given below?



(+) EVEN

$y = 2(x+2)^2(x+1)(x^3)$

a) $f(x) = -(x+1)^2 (x-2)^2$

b) $f(x) = 2(x+2)^2 (x+1) x^3$

c) $f(x) = (x-2)(x+1)^2 (x+2) x^2$

d) $f(x) = -2(x+2)^2 (x+1) x^3$

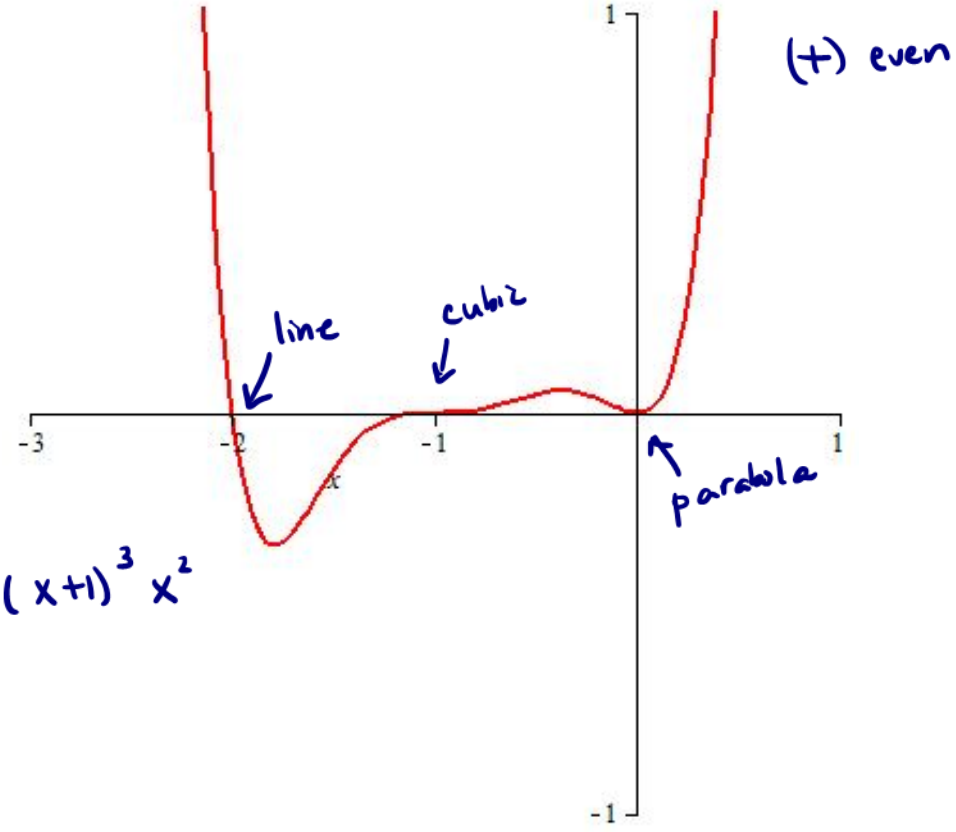
e) $f(x) = 2(x+1)^2 (x+2)^2 x^2$

f) None of the above.

Question 13

Your answer is CORRECT.

Which of the following functions could represent the graph given below?



$y = (x+2)(x+1)^3 x^2$

a) $f(x) = x^2 (x+2)(x+1)^3$

b) $f(x) = x^2 (x+2)^3 (x+1)$

c) $f(x) = -x^2 (x+2) (x+1)^3$

d) $f(x) = x (x-2)^2 (x-1)^3$

e) $f(x) = -x^2 (x+2)^2 (x+1)^3$

f) None of the above.

Question 14

Your answer is CORRECT.

Give the degree of the polynomial

$$p(x) = -10 x^1 (x-2)^1 (x+4)^3 (x+2)^4$$

a) 7

$1 + 1 + 3 + 4 = 9$

b) 9

c) 12

d) 4

e) 1

f) None of the above.

Question 15

Your answer is CORRECT.

Find the x- and y- intercepts for the parabola

$$y = -(x-4)^2 + 100$$

x-intercept: $y = 0$

y-intercept: $x = 0$

a) x-intercepts: (14, 0); y-intercept: (0, 84)

b) x-intercepts: (14, 0), (-6, 0); y-intercept: (0, 100)

c) x-intercepts: (14, 0), (-6, 0); y-intercept: (0, 84)

d) x-intercepts: (14, 0), (-6, 0); y-intercept: (0, 116)

e) x-intercepts: (15, 0), (-5, 0); y-intercept: (0, 84)

$0 = -(x-4)^2 + 100$

$(x-4)^2 = 100$

$x - 4 = 10$ $\quad$ $x - 4 = -10$

$x = 14$ $\quad$ $x = -6$

$(14, 0)$ $\quad$ $(-6, 0)$

$y = -(16) + 100$

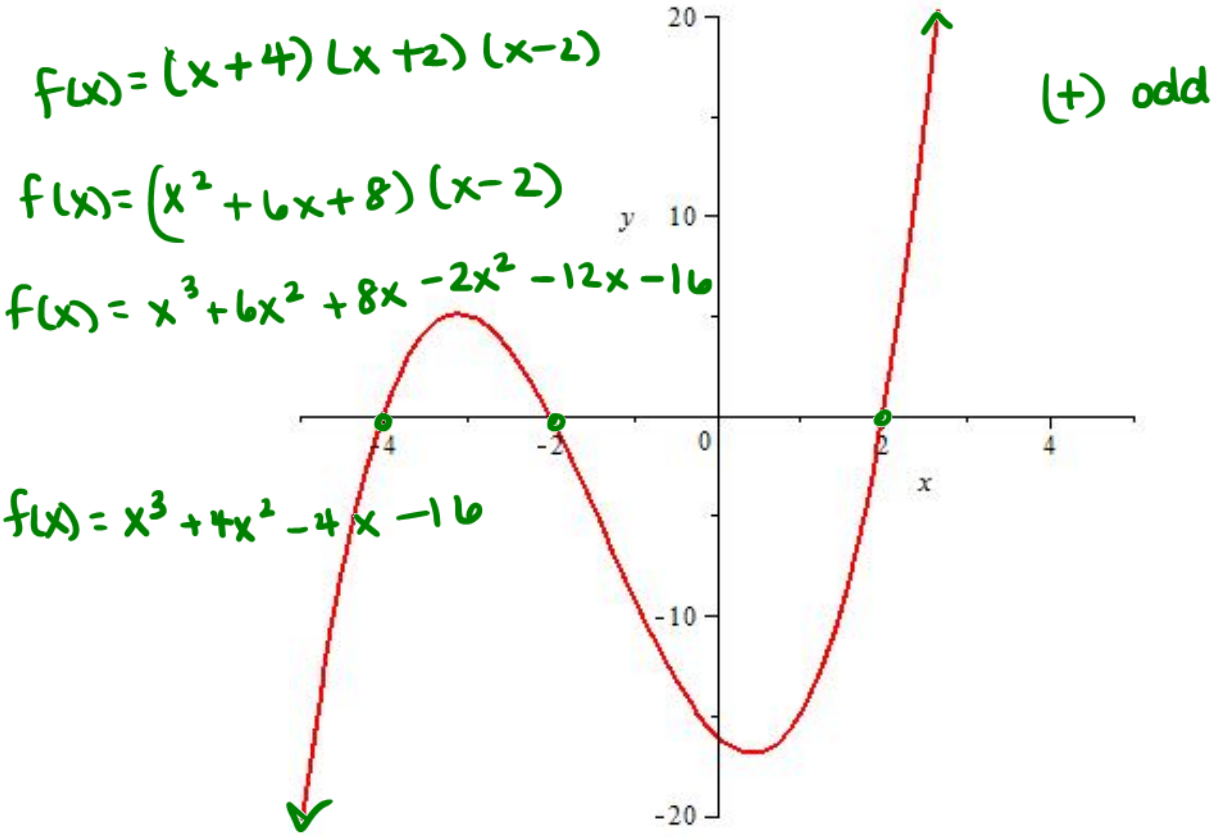
$y = 84$ $\quad$ $(0, 84)$

f) None of the above.

Question 16

Your answer is CORRECT.

Give the function graphed below



a) $f(x) = -x^3 + 4x^2 + 4x - 16$

b) $f(x) = x^3 - x^2 + 2x + 16$

c) $f(x) = x^3 - 4x^2 + 4x + 16$

d) $f(x) = x^3 + 4x^2 - 4x - 16$

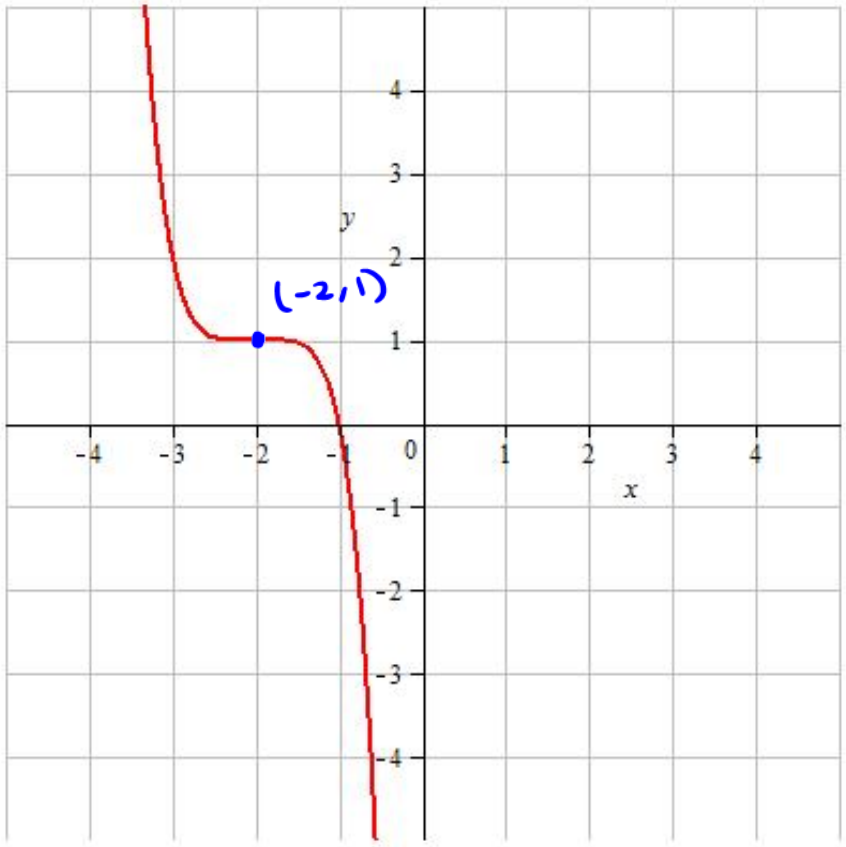
e) $f(x) = x^3 - 4x^2 - 4x - 4$

f) None of the above.

Question 17

Your answer is CORRECT.

Which of the following functions would result in the graph shown below?



1. reflect over x-axis
2. up 1
left 2

(−) odd

a) $f(x) = (x-2)^5 - 1$

$y = -(x+2)^5 + 1$

b) $f(x) = (x+2)^5 + 1$

c) $f(x) = -(x+2)^4 - 1$

d) $f(x) = -(x+2)^5 + 1$

e) $f(x) = -(x-2)^5 + 1$

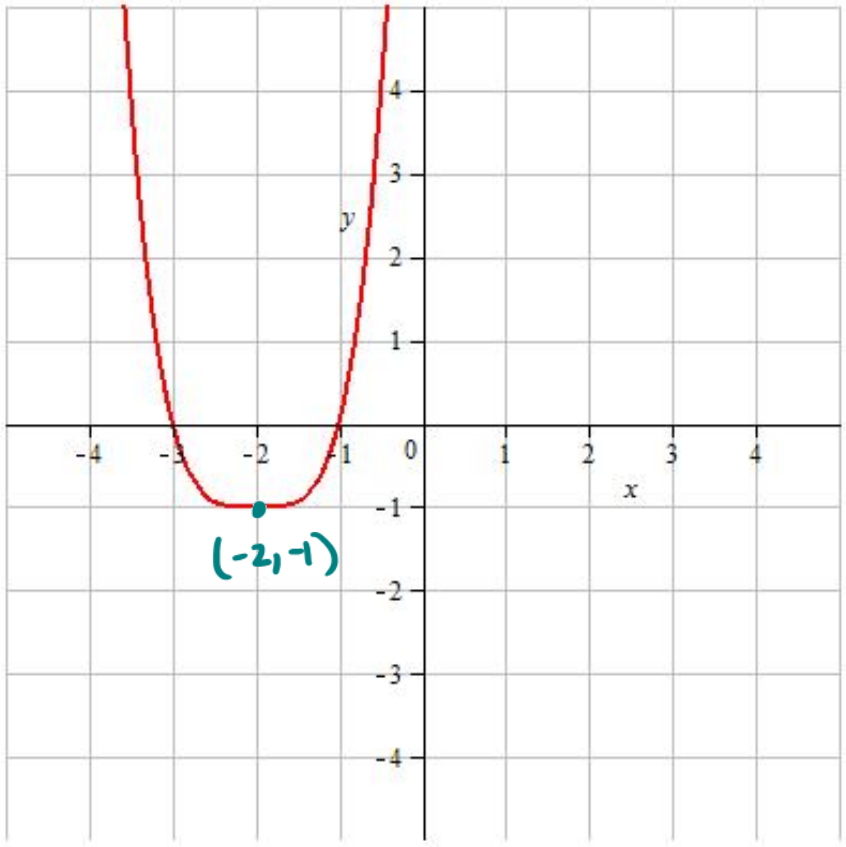
f) None of the above.

Question 18

Your answer is CORRECT.

Which of the following functions would result in the graph shown below?

(+)
even



a) $f(x) = (x+2)^4 - 1$ $y = (x+2)^4 - 1$

b) $f(x) = (x-2)^4 + 1$

c) $f(x) = -(x+2)^4 - 1$

d) $f(x) = -(x+2)^4 + 1$

e) $f(x) = (x-2)^4 - 1$

f) None of the above.

Question 19

Your answer is CORRECT.

Find all x-intercept(s) of the polynomial

$$p(x) = -7x(x+10)^3(x-6)^4(x-4)$$

a) (-10, 0), (6, 0), (4, 0) $x=0$ $x=-10$ $x=6$ $x=4$

b) (-7, 0), (-10, 0), (6, 0), (4, 0) (0,0) (-10,0) (6,0) (4,0)

c) (0, 0), (-10, 0), (6, 0), (4, 0)

d) (0, 0)

e) (10, 0), (-6, 0), (4, 0), (0, 0)

f) None of the above.

Question 20

Your answer is CORRECT.

Find the *y*-intercept(s) of the polynomial

$$p(x) = -3x^2(x+7)^4(x-5)^2(x+4)$$

a) (-7, 0), (5, 0), (-4, 0)

b) (0, 0)

c) (0, 0), (-7, 0), (5, 0), (-4, 0)

d) (7, 0), (-5, 0), (-4, 0), (0, 0)

e) (-3, 0), (-7, 0), (5, 0)

f) None of the above.