3C

Unit 2 Quadratics Practice Test

1) a) linear ∴ x has an exponent of 1

b)

x	y		
0	-62		
		21	
1	-41		-6
		15	
2	-26		-6
		9	
3	-17		-6
		3	
4	-14		

quadratic since 2nd differences are constant

c) neither ∴ it is not parabolic, symmetrical

2) $y = 4(x+2)^2 - 3$

a) vertex $(-2, -3)$

b) minimum - opens up since "a" is positive

c) -3 (the y from the vertex)

3) a) max height 7 units

b) max height happened 2 units away from the fountain

c) landed in the pool 5 m away from the fountain

d) $y = a(x-2)^2 + 7$ plug in $(0, 4)$

$4 = a(0-2)^2 + 7$

$-3 = a(-2)^2$

$-3 = 4a$

$-\frac{3}{4} = a$

∴ $y = -\frac{3}{4}(x-2)^2 + 7$.

4) $h = -2t(t-10)$

$t = 0$ $\quad t = 10$ x intercepts

a) $t = 0$

$h = -2(0)(0-10)$

$h = 0$ ∴ kicked from 0m

b) it is in the air for 10 seconds

5) y intercept happens when $x = 0$

$y = -2(0)^2 - 10(0) + 7$

$= 7$

or just read it from standard form $y = -2t^2 - 10t + 7$

∴ $(0, 7)$

6 $h = -5(t-3)^2 + 67$

a) 67 m

b) 3 sec

c) $t = 0$ $\quad h = -5(0-3)^2 + 67$

$= -5(9) + 67$

$= -45 + 67$

$= 22$.

7a) $(x+5)(x-3)$

$= x^2 + 5x - 3x - 15$

$= x^2 + 2x - 15$

b) $(x-2)^2$

$= (x-2)(x-2)$

$= x^2 - 2x - 2x + 4$

$= x^2 - 4x + 4$

8a) $x^2 + 7x + 10$ M: 10 A: 7 N: 5, 2.

$= (x+5)(x+2)$

b) $3x^2 + 9x - 12$ M: -4 A: 3 N: +4, -1

$= 3(x^2 + 3x - 4)$

$= 3(x+4)(x-1)$.

c) $x^2 - 36$

$= x^2 + 0x - 36$ M: -36 A: 0 N: 6, -6

$= (x+6)(x-6)$

d) $6x^2 - 12x$ M: 0 A: -2 N: -2, 0

$= 6x^2 - 12x + 0$

$= 6(x^2 - 2x + 0)$

$= 6(x-2)(x+0)$

9a) $y = -2(x-3)^2 + 4$

$= -2(x-3)(x-3) + 4$

$= -2(x^2 - 3x - 3x + 9) + 4$

$= -2(x^2 - 6x + 9) + 4$

$= -2x^2 + 12x - 18 + 4$

$= -2x^2 + 12x - 14$

b) $y = (x+5)(x-1)$

$= x^2 + 5x - x - 5$

$= x^2 + 4x - 5$

10a) $x = 0$ $\quad h = -0.05(0)^2 + 1.5(0)$

$h = 0$ $\therefore$ 0m

b) $h = -0.05x(x - 30)$

x intercepts @ (0,0) (30,0)

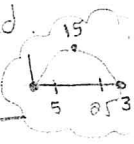
c) vertex (15, ___)

$h = -0.05(15)^2 + 1.5(15)$

$= 11.25$

d) 15 m from where it was kicked

e) $h = -0.05(5)^2 + 1.5(5)$

$= 6.25$

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