**MPM2D Test 5**

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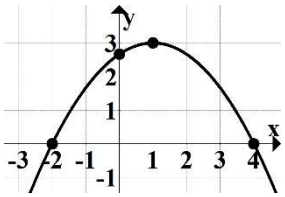
| Content /46 | Comm /4 | Total /50 |

**Name**_____

**Part A Attempt all questions in Part A before moving on to Part B. 28 marks**

**1. State the zeros for each quadratic function. [3]**

a) 


b) $y = -4(x+3)(7x-5)$

c) $y = 2x(x-7)$

**2. Fill in the blanks. [5]**

a) Write the equation of a quadratic with roots at x=-5 and x=9 in factored form. _____

b) Write an equation of a quadratic with roots at $x = \frac{2}{3}$ and $x = \frac{-1}{4}$ in factored form, using integer values only. _____

c) How many zeros does $y = -2(x+5)^2 + 9$ have? _____

d) Determine the maximum height (m) of an object whose height is $h = -4.9(t-5)^2 + 28$. _____

e) The height(m) of an object, after t seconds, is $h = -4.9(t+2)(t-8)$. When does it hit the ground?_____

**3. Solve by <u>factoring</u>. [4]**

a) $x^2 - 4x - 12 = 0$

b) $9x^2 - 16 = 0$

**4. Solve by using the <u>quadratic formula</u>. Round your answers to 2 decimal places. [5]**

a) $3x^2 - 2x - 7 = 0$

b) $5x^2 - 3x + 9 = 0$

**5.** **Write the quadratic equation in vertex form by <u>completing the square</u>.** **[4]**

a) $y = x^2 + 18x - 4$ b) $y = -3x^2 + 24x + 4$

**6.** **Determine the value of the discriminant, D, then state the number of solutions for each quadratic equation.** **[4]**

a) $6x^2 + 7x - 20 = 0$ b) $9x^2 - 30x + 25 = 0$

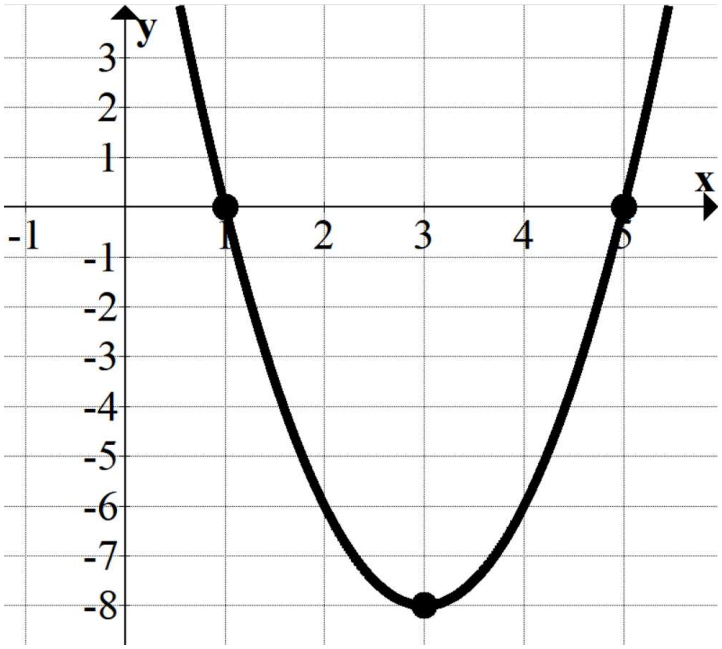
**7.** **Determine the equation of the quadratic function graphed below in:** **[3]**

**a = _____**

a) Vertex Form y = _____

b) Factored Form y = _____

c) Standard Form (show your work)



**Part B Attempt all questions in Part A before moving on to Part B 18 marks**

**8. Solve. Give exact answers (no rounding). ** <u>You can only use the quadratic formula ONCE.</u> [10]**

a) $6x^2 - 13x - 5 = 0$

b) $25x^2 = 70x - 49$

c) $3(x-2)^2 - 147 = 0$

d) $2x(3x+4) = 3 - 2x(x-1)$

**9. The height of a football, in metres, t seconds after it was kicked is $h = -5t^2 + 30t + 1.9$. [6]**

a) Determine the maximum height of the ball.

b) How many seconds was the height above 20 m high?

**10. Determine the value(s) of k so that $2x^2 + kx + 8 = 0$ has 2 solutions. [2]**