Towheed Iranian School

(International Section)

First Term, Final Exams, 2015-2016

Mark
_____

Subject: **Date:**

Name: _____ Grade: 9 Section: A D

Exam time: min

Find each sum or difference. (2 marks)

$3a(a^2 - 3a + 4) - 4(3a^3 - 2a^2)$. $(-3d^2 - 8 + 2d) + (4d - 12 + d^2)$

Find each product (any 4) (6 marks)

$(11z - 5y)(3z + 2y)$ $(3c + 4d)^2$ $(3m - 4)^2$

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

Factor each polynomial. **(6 marks)**

$t^2 - 16t + 48$

$2xy - x + 4y - 2$

$3x^2 - 11x - 20$

$2y^4 - 50$

Solve **(6 marks)**

$w(4w + 6) + 2w = 2(2w^2 + 7w - 3)$

$x^2 + 8x + 16 = 25$

$5x^2 - 60x = -180$

$2x^2 - 13x + 20 = 0$

Solve each equation by using the <u>Quadratic Formula</u> **(4 marks)**

$5x^2 + 21x + 18 = 0$

$4x^2 + 5x - 6 = 0$

Consider the given function. $y = 5x^2 - 2x + 2$ **(3 marks)**

a) Determine whether the function has a maximum or a minimum value.

b)State the maximum or minimum value.

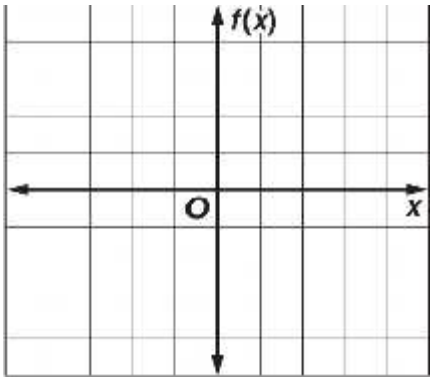
c) What are the domain and range of the function?

Find the vertex, the equation of the axis of symmetry, and the y–intercept of the function

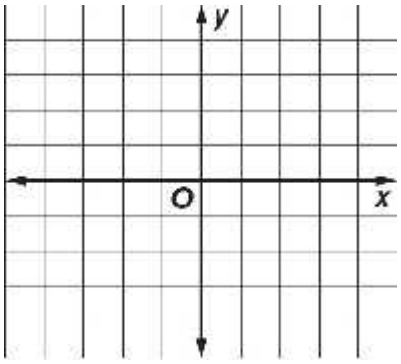
$y = -2x^2 + 8x - 5$. (3 marks)

Graph each function. State the domain and range. **(4 marks)**

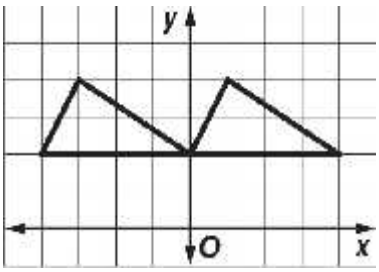
$f(x) = |-x + 2|$



$f(x) = \begin{cases} -x + 4 \text{ if } x \leq 1 \\ x - 2 \text{ if } x > 1 \end{cases}$



Identify the type of congruence transformation shown as a reflection, translation, or rotation **(1 mark)**



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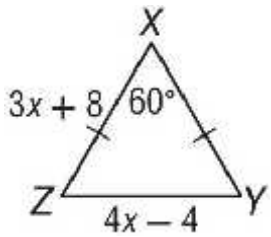
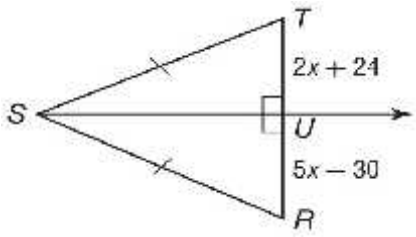
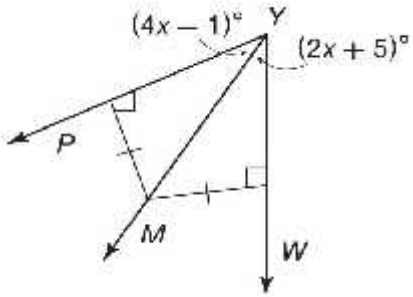
Find the value of the variable 'x' **(1 mark)**



Find each measure. **(3 marks)**





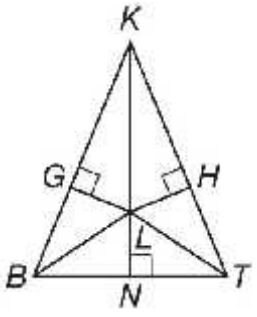
What is the point called where the perpendicular bisectors of the sides of a triangle intersect? **(1 mark)**

a) circumcenter **b)incenter** **c) centroid**

Point L is the circumcenter of △KBT. List any segment(s) congruent to each segment. **(2 marks)**

a) $\overline{B}$ - _____

b) $\overline{B}$ - _____



Match each equation to its graph. (4 marks)

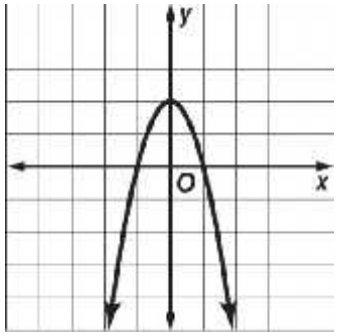
a) $y = 2x^2 - 2$

b) $y = \frac{1}{2}x^2 - 2$

c) $y = -\frac{1}{2}x^2 + 2$

d) $y = -2x^2 + 2$

1



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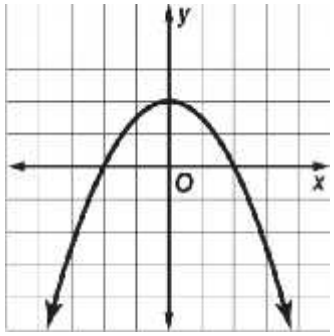

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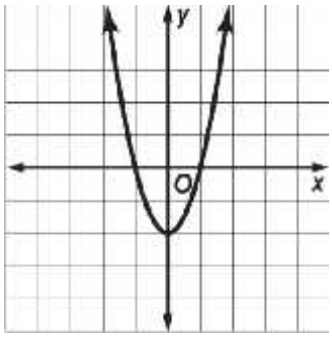

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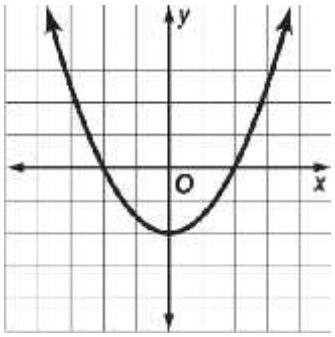

Problem solving (4 marks)

The product of two consecutive even integers is 224. Find their sum.

Julian kicked a soccer ball into the air with an initial upward velocity of 40 feet per second. The height h in feet of the ball above the ground can be modeled by $h = -16t^2 + 40t$, where t is the time in seconds after Julian kicked the ball. Find the time it takes the ball to reach the **ground**.

BONUS

Critical Thinking **(2 marks)**

Find the value of **c** that will make $4y^2 + 1\ y + c$ a perfect square trinomial