Concept MCQs

November 20, 2013

1 ID 2 Addition and Subtraction of Algabraic Fractions

1. What is the lowest common multiple of the following expression?

$$\frac{2}{3} - \frac{3}{4} + \frac{5}{6}$$

   (a) (3)(4)(6)
   (b) 12 *
   (c) 24
   (d) 72
   (e) I don't know yet.

2. What is the lowest common multiple of the following expression?

$$\frac{2}{x} - \frac{3}{x+2} + \frac{5}{x^2}$$

   (a) $(x)(x+2)(x^2)$
   (b) $(x)(x+2)$
   (c) $(x+2)(x^2)$ *
   (d) 30
   (e) I don't know yet.

3. Which of the following steps is correct when simplifying the following expression?

$$\frac{3}{x+5} - \frac{4}{3x-2}$$

   (a) $3(x+5) - 4(3x-2)$
   (b) $3(3x-2) - 4(x+5)$
   (c) $\frac{3(3x-2)-4(x+5)}{(x+5)(3x-2)}$ *
   (d) $\frac{3(x+5)-4(3x+2)}{(x+5)(3x-2)}$
   (e) I don't know yet.

2 ID6 Sum or Difference of Two Cubes

1. What is the correct way to factorise the following expression?

$$a^3 - b^3$$

(a) $(a-b)(a+b)$

(b) $(a-b)(a^2+2ab+b^2)$

(c) $(a-b)(a^2+ab+b^2)$ *

(d) I don't know yet.

2. What is the correst way to factorise the following expression?

$$x^3 + 8y^3$$

(a) $(x+8y)(x^2-8xy+8y^2)$

(b) $(x+2y)(x^2-4xy+2y^2)$

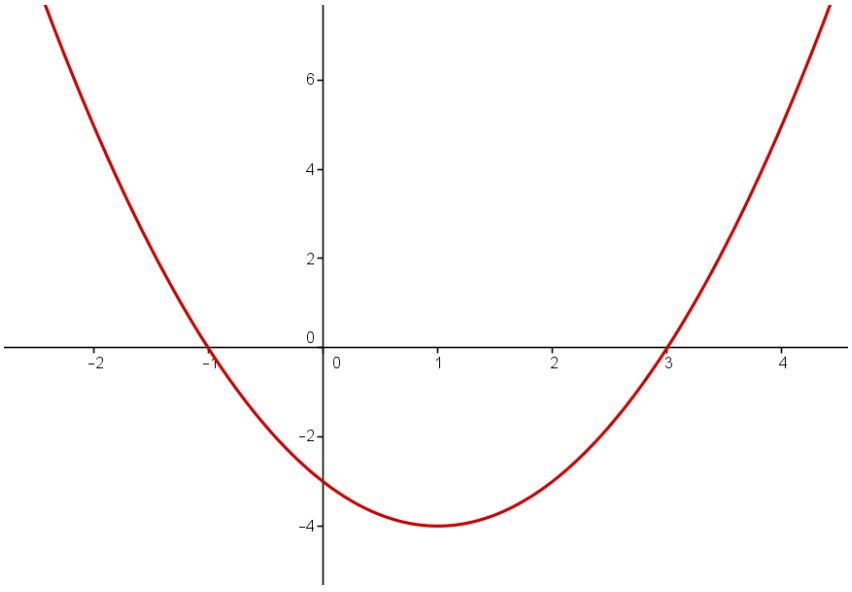
(c) $(x-2y)(x^2+4xy+2y^2)$

(d) $(x+2y)(x^2-2xy+4y^2)$ *

(e) I don't know yet.

3 ID12 Solving Quadratic Equations Using Algebra

1. Which of the quadratic functions below describes the following graph?



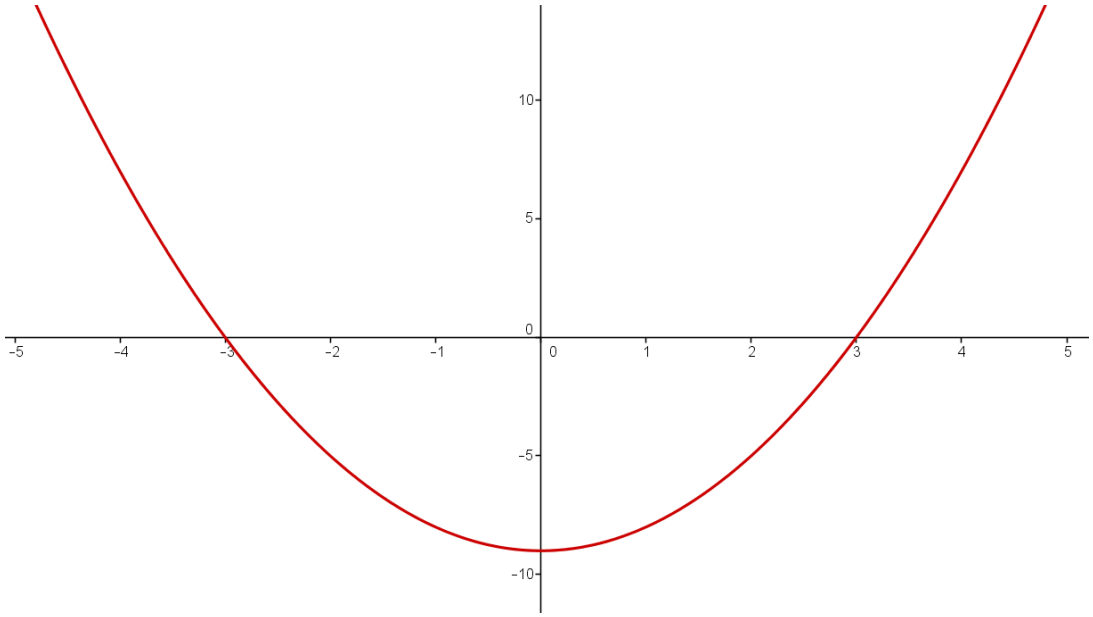
(a) $y = x^2 - 2x - 3$ *

(b) $y = x^2 - 5x + 4$

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

(d) I don't know yet.

2. Which of the quadratic functions listed below describes the following graph?



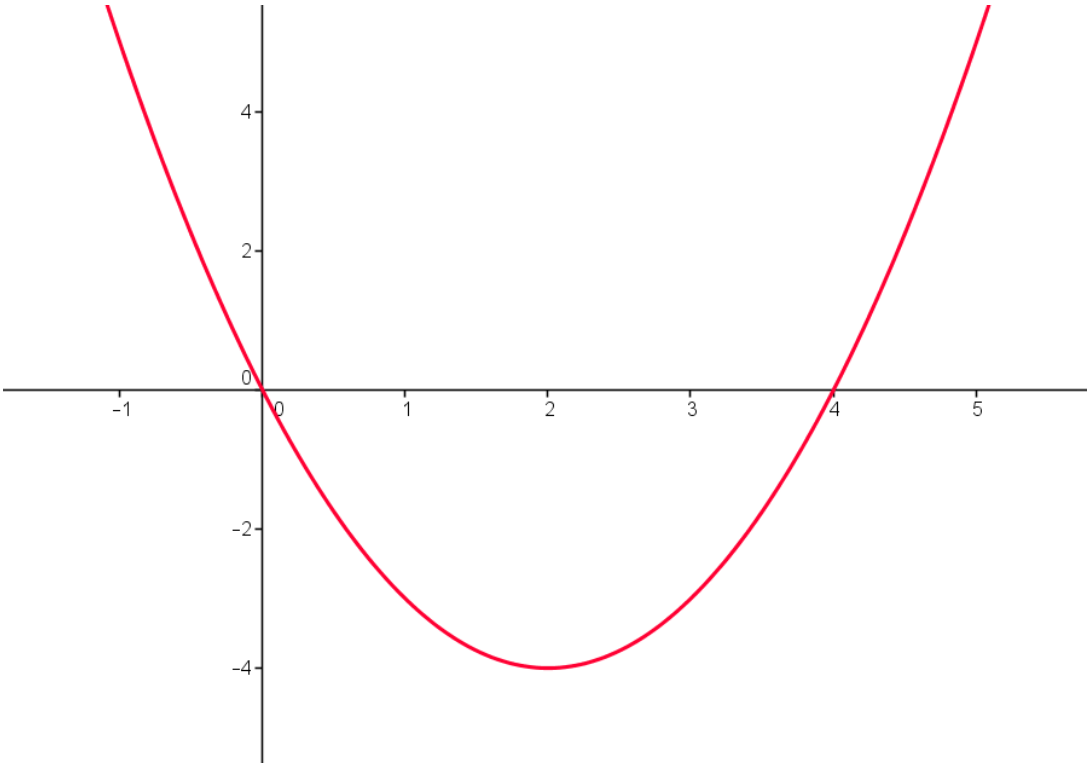
(a) $y = x^2 + 6x + 9$

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

(c) $y = x^2 - 9$ *

(d) I don't know yet.

3. Which of the quadratic functions listed below describes the following graph?



(a) $y = x^2 - 4$

(b) $y = x^2 - 4x$ *

(c) $y = x^2 + 4x + 16$

(d) I don't know yet.

4 ID 14 Solving Quadratic Equations using the Quadratic Formula

1. Which of the options below is the correct way to use the quadratic formula to solve the following equation?

$$2x^2 - 3x - 8 = 0$$

(a) $x = \frac{-3 \pm \sqrt{9-4(2)(-8)}}{2(2)}$

(b) $x = \frac{3 \pm \sqrt{9-4(2)(-8)}}{2(2)}$ *

(c) $x = \frac{-3 \pm \sqrt{-9-4(2)(-8)}}{2(2)}$

(d) $x = \frac{-3 \pm \sqrt{(3)^2-4(2)(8)}}{2(2)}$ (Big misconception)

(e) I don't know yet.

2. What is the appropriate next step in simplifying the following quadratic formula?

$$x = \frac{-(-2) \pm \sqrt{(-2)^2 - 4(1)(-3)}}{2(1)}$$

(a) $x = \frac{2 \pm \sqrt{4+12}}{2}$ *

(b) $x = \frac{-2 \pm \sqrt{4+12}}{2}$

(c) $x = \frac{2 \pm \sqrt{-4+12}}{2}$

(d) $x = \frac{2 \pm \sqrt{-4-12}}{2}$

(e) I don't know yet.

5 ID33 Linear Inequalities

1. Which of the inequalities listed below describes the region shown in the graph?

(a) $x < 3, x \in R$

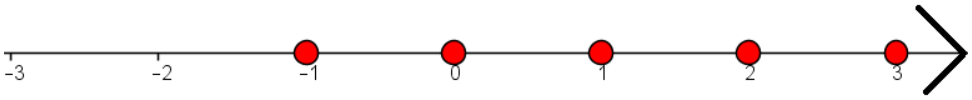
(b) $x \leq 3, x \in Z$

(c) $x \geq 3, x \in Z$

(d) $x \leq 3, x \in R$ *

(e) I don't know yet.

2. Which of the inequalities listed below best describes the region shown in the graph?



(a) $x > 2, x \in N$
(b) $x > -2, x \in Z$ *
(c) $x > -1, x \in Z$
(d) I don't know

3. Which of the inequalities listed below describes the region shown in the graph?

(a) $-2 < x < 3, x \in R$
(b) $-2 \geq x \geq 3, x \in R$
(c) $-2 \leq x \leq 3, x \in R$
(d) $-2 \leq x < 3, x \in R$ *
(e) I don't know yet.

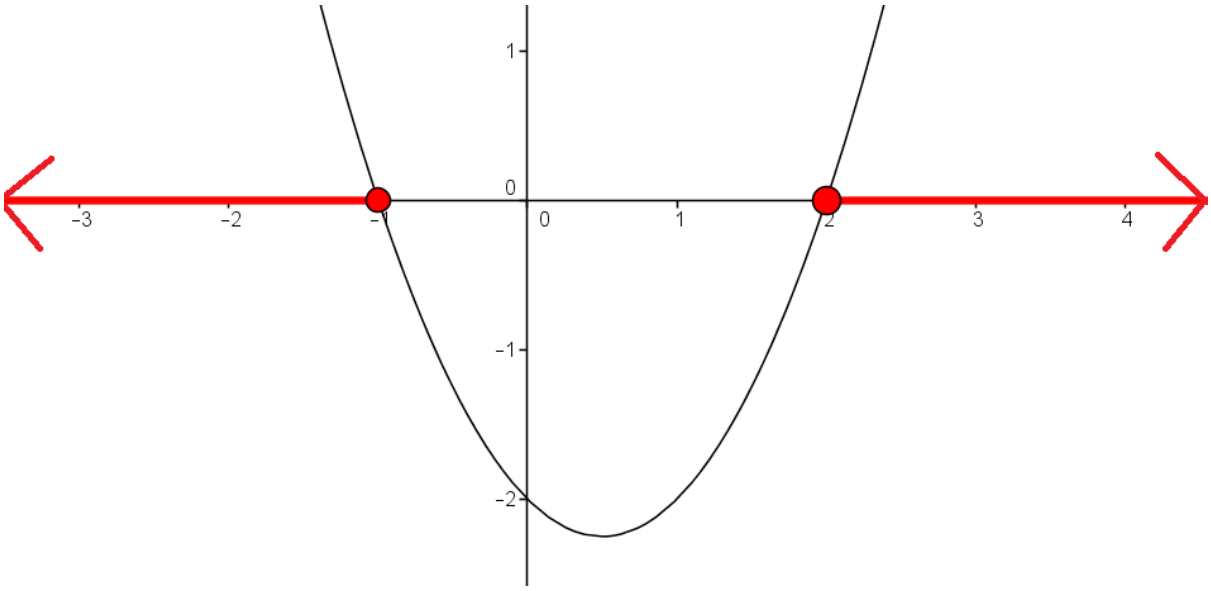
4. What is the solution to the following linear inequality?

$$1 - 3x \leq -8, x \in R$$

(a) $x \leq 3, x \in R$
(b) $x \geq 3, x \in R$ *
(c) $x \leq -3, x \in R$
(d) $x \geq -3, x \in R$
(e) I don't know yet.

6 ID34 Quadratic Inequalities

1. Which of the quadratic inequalities listed below is described by the following graph?



(a) $x^2 - 1x - 2 > 0$

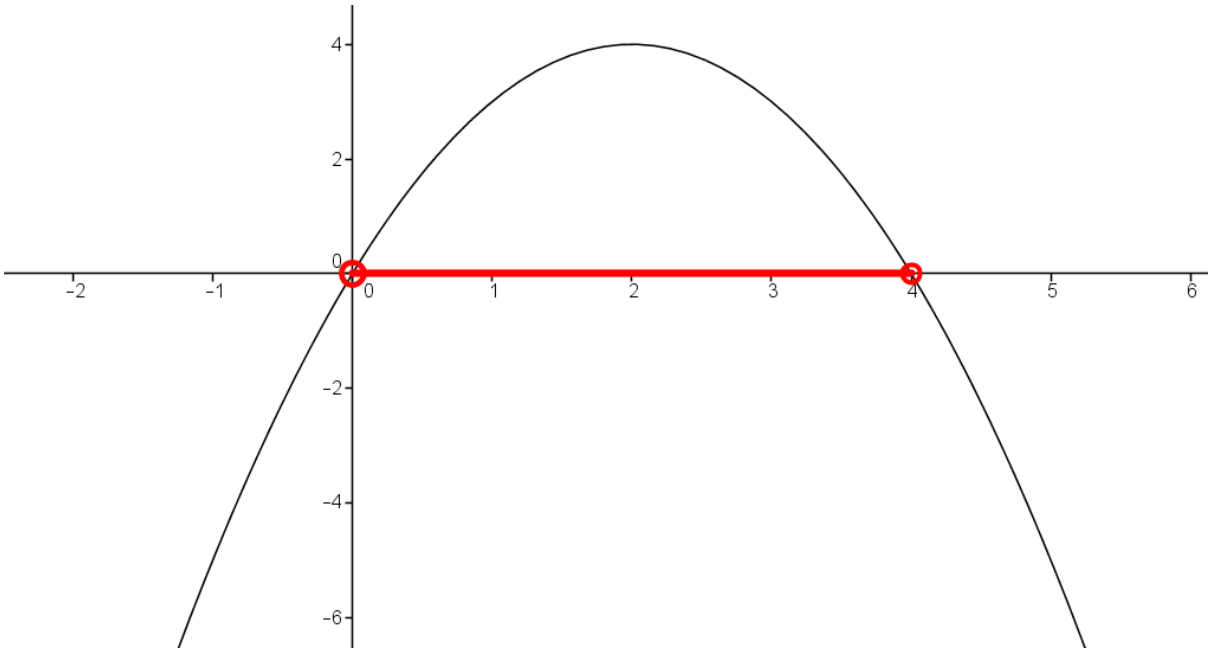
(b) $x^2 - 1x - 2 < 0$

(c) $x^2 - 1x - 2 \geq 0$ *

(d) $x^2 - 1x - 2 \leq 0$

(e) I don't know yet.

2. Which of the quadratic inequalities listed below is described by the following graph?



(a) $4x - x^2 > 0$ *

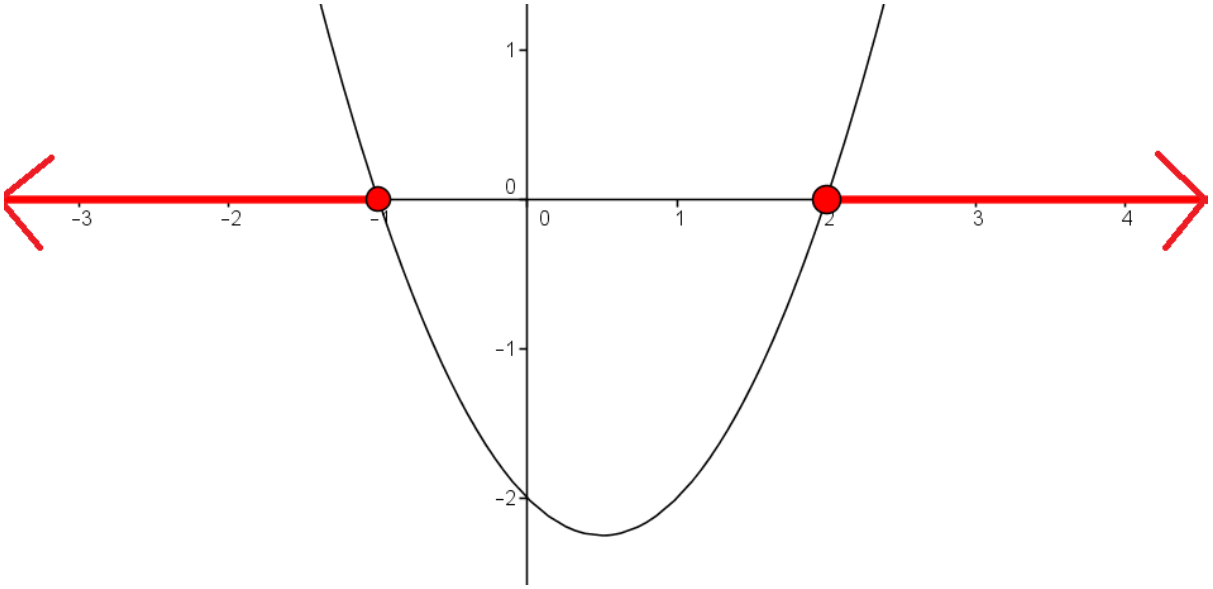
(b) $4x - x^2 < 0$

(c) $x^2 - 4x > 0$

(d) $x^2 - 4x \geq 0$

(e) I don't know yet

3. Which of the following inequalities listed below is described by the following graph?



(a) $x < -1, x > 2, x \in R$

(b) $-1 \leq x \leq 2, x \in R$

(c) $x \leq -1, x \geq 2, x \in R$ *

(d) I don't know yet.

7 ID3 Multiplication and Division of Algabraic Fractions

1. Simplify the following expression

$$\frac{3}{x-1} \times \frac{2}{x+1}$$

(a) $\frac{6}{x^2-1}$ *

(b) $\frac{3x+1}{2x-1}$

(c) $\frac{3(x+1)+2(x-1)}{x^2-1}$

(d) I don't know yet.

2. Simplify the following expression:

$$\frac{4}{x+2} \div \frac{3}{x-1}$$

(a) $\frac{12}{x^2+x-2}$

(b) $\frac{4(x-1)-3(x+2)}{x^2+x-2}$

(c) $\frac{4x-4}{3x+6}$ $*$

(d) I don't know yet.