

Concept MCQs

September 28, 2013

1 ID 2 Addition and Subtraction of Algebraic 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.

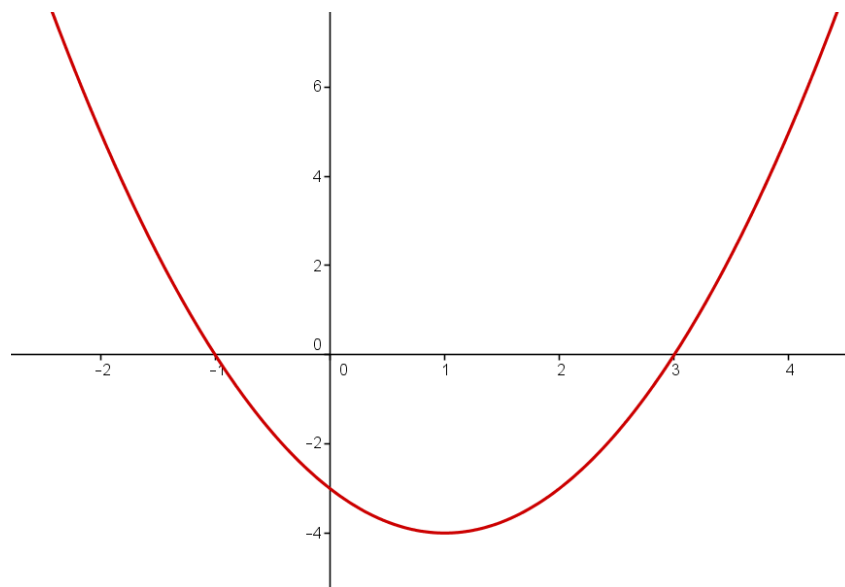
2. What is the correct way to factorise the following expression?

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

- (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.

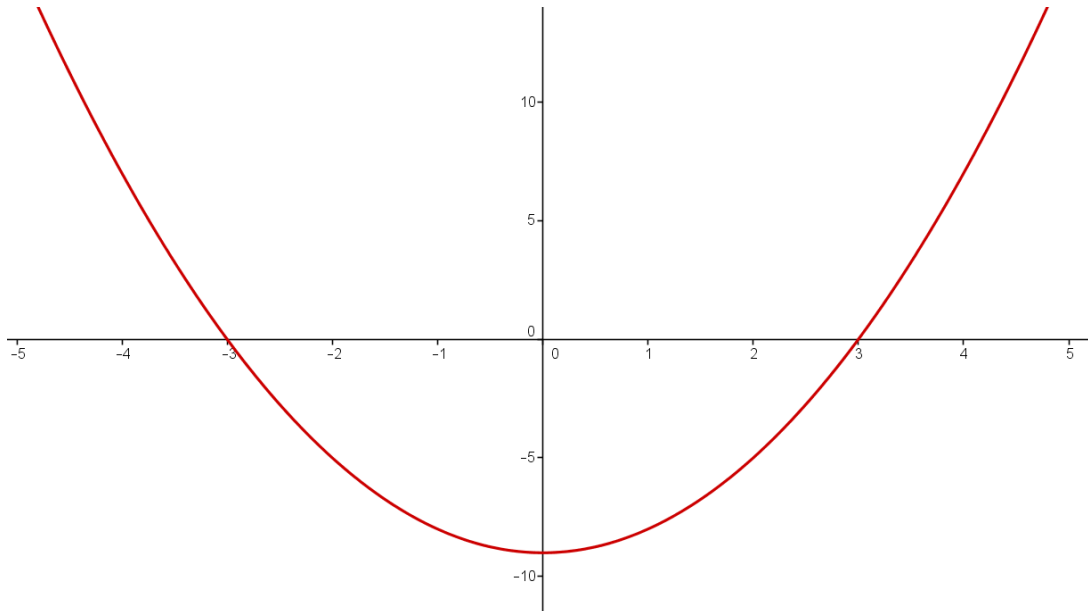
3 ID12 Solving Quadratic Equations Using Algebra

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



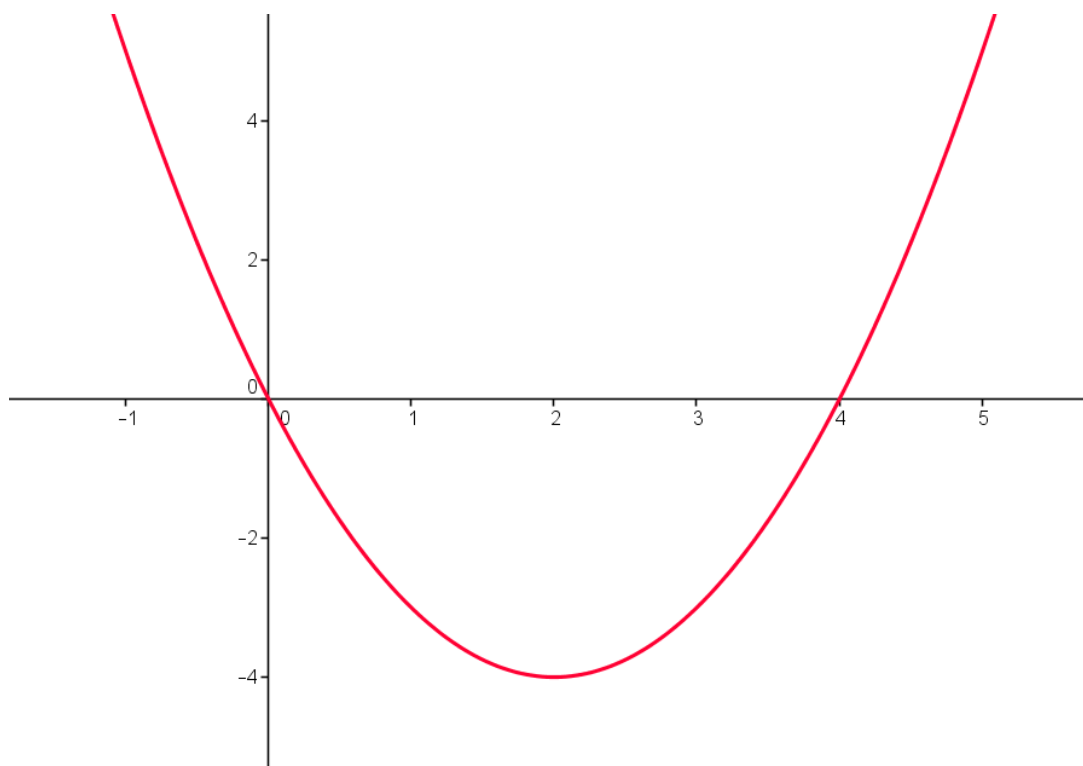
- (a) $y = x^2 - 2x - 3$
- (b) $y = x^2 - 5x + 4$
- (c) $y = x^2 + 4x + 3$
- (d) I don't know yet.

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.

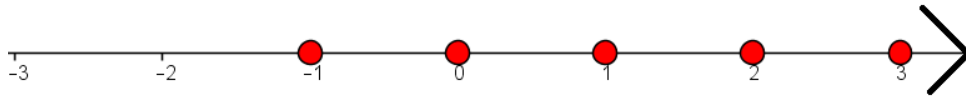
5 ID33 Linear Inequalities

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.

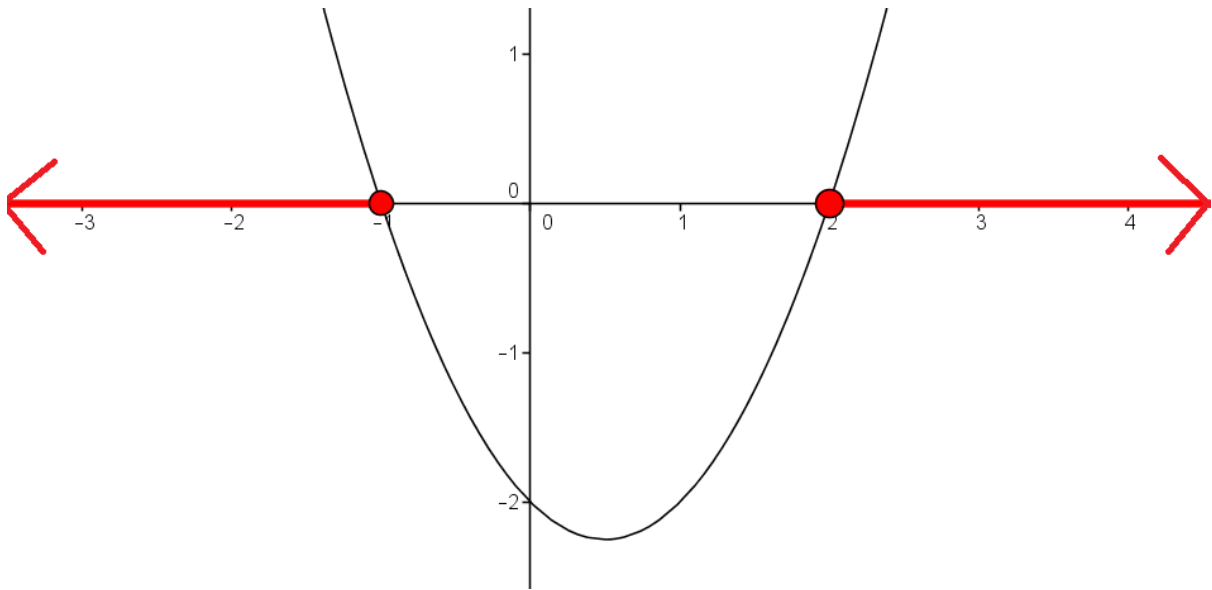
4. What is the solution to the following linear inequality?

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

- (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.

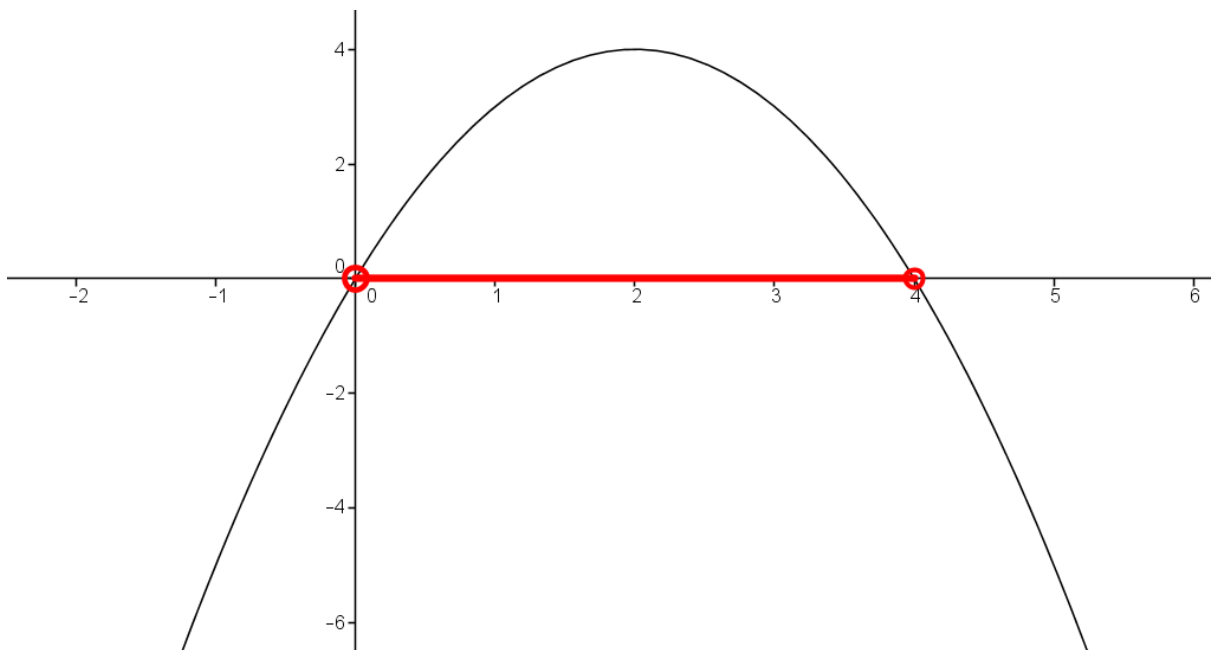
6 ID34 Quadratic Inequalities

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.

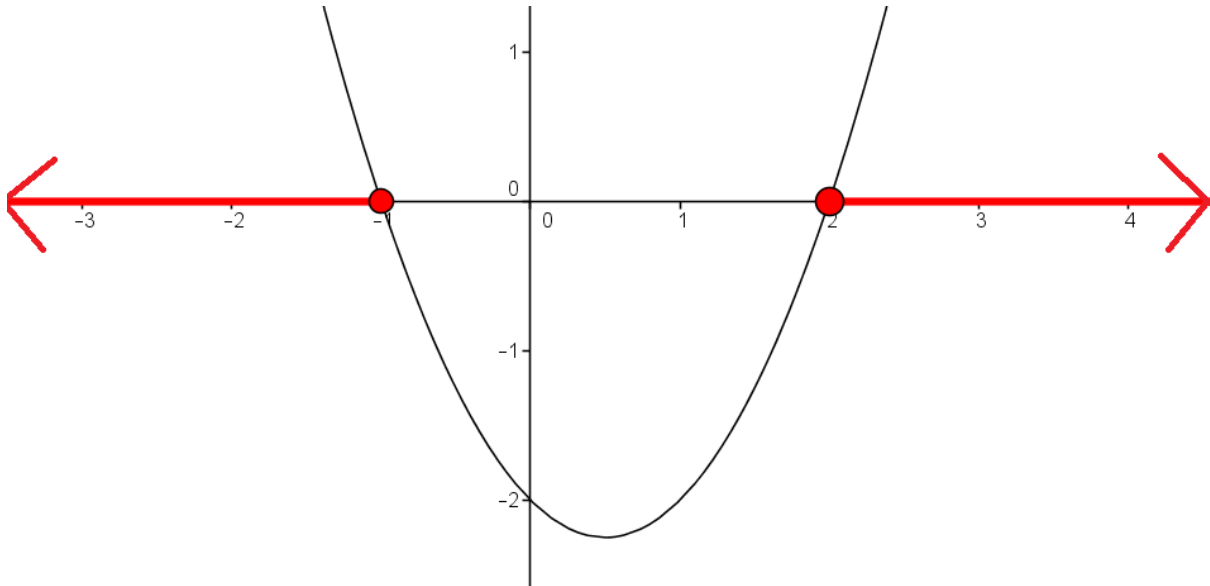
2. Which of the quadratic inequalities listed below is described by the following graph?



- (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 Algebraic 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.