1. Which of the following expressions are equivalent to $(3x-1)(x+7)$:

(i) $3x^2 - 7$

(ii) $(7+x)(3x-1)$

(iii) $3x^2 + 20x - 7$

(iv) $3x(x+7) - x - 7$

2. Which of the following expressions are equivalent to $(12x^3 + 6x^2 - 24x) \div 2x$:

(i) $\dfrac{12x^3}{2x} + \dfrac{6x^2}{2x} - \dfrac{24x}{2x}$

(ii) $\dfrac{-6x^6}{2x}$

(iii) $(12x^3 + 6x^2 - 24x) \cdot \dfrac{1}{2x}$

(iv) $6x^2 + 3x - 12$

3. Consider the following equation: $A = B^2C - \dfrac{B}{C^2}$. Which of the following are true:

(i) When $B = -1$ and $C = 1$, the value of A is 0

(ii) When $B = 1$ and $C = -1$, the value of A is -2

(iii) When $B = -1$ and $C = -1$, the value of A is -1

(iv) When $B = 2$ and $C = \frac{1}{2}$, the value of A is -6

4. What is the result when you solve the equation: $P = \dfrac{1-mb}{m}$ for b and for m?

(i) $b = \dfrac{1-mP}{m}$, and $m = \dfrac{1}{P+b}$

(ii) $b = Pm - 1 + m$, and $m = \dfrac{1}{Pb}$

(iii) $b = \dfrac{1}{m}(1-mP)$, and $m = \dfrac{1}{b+P}$

(iv) $b = \dfrac{mP-1}{m}$, and $m = \dfrac{1-Pb}{P}$

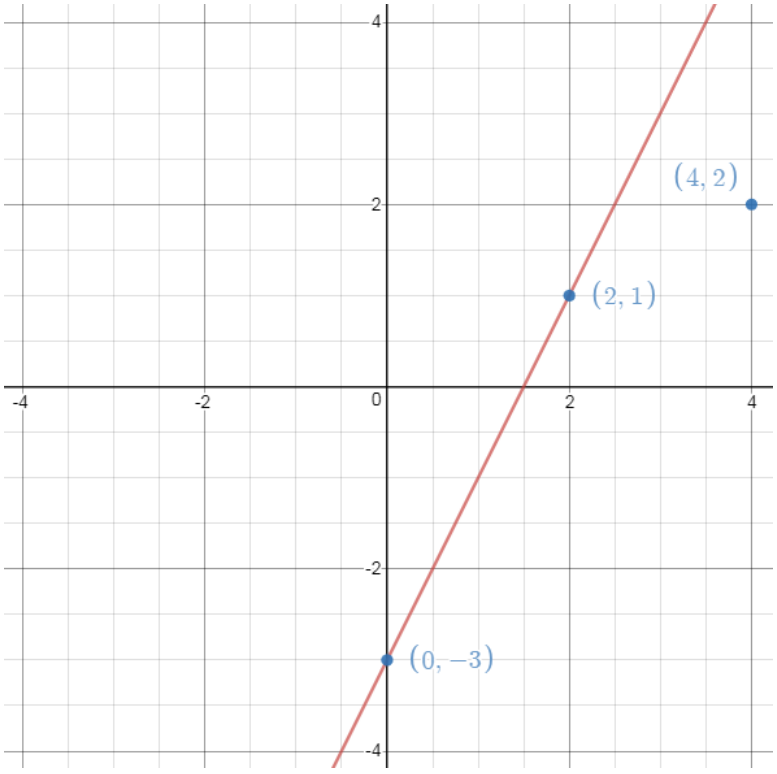
5. Find the solution to the equation: $-\frac{1}{2}(4x+5) = -3(x-1)$

(i) $x = -\frac{1}{2}$ (ii) $x = \frac{11}{2}$ (iii) $x = 4$ (iv) No solution

6. Find the solution to the equation: $\frac{-3}{x-1} = \frac{5}{x+1}$

(i) $x = \frac{1}{8}$ (ii) $x = -\frac{1}{8}$ (iii) $x = \frac{1}{4}$ (iv) No solution

7. Which of the following statements is true about the following graph?



(i) The values $x = 4$ and $y = 2$ are a solution to the line's equation.

(ii) The line's equation is $2x - y = 3$.

(iii) The point $(2, 1)$ is in Quadrant II.

(iv) The line's $x-$intercept is -3.

8. Suppose that line L_1 passes through the points $A(-1,-1)$ and $B(2,-4)$, and line L_2 has the equation: $5x + y = 10$. Which of the following statements are true?

(i) The two lines are parallel.

(ii) The $y-$intercept of L_1 and L_2 are -2 and 10, respectively.

(iii) The two lines are perpendicular.

(iv) The slopes of L_1 and L_2 are -1 and -5, respectively.

9. What is the solution to the inequality: $2|3x + 6| - 1 < 23$ in interval notation?

(i) $x \in (-6, 2)$

(ii) $x \in (-\infty, -6) \cup (2, \infty)$

(iii) $x \in (-2, 2)$

(iv) $x \in (-6, 6)$

10. What is the solution to the inequality: $2|3x + 6| - 1 \geqslant 23$ in interval notation?

(i) $x \in [-6, 2]$

(ii) $x \in (-\infty, -6] \cup [2, \infty)$

(iii) $x \in [-2, 2]$

(iv) $x \in [-6, 6]$