

# PROGRESS CHECK – ALGEBRA I VERSION 1

**CALCULATORS ARE NOT TO BE USED ON THIS TEST**

For each question, select the most correct response

1. Simplify:  $\frac{(x+6)(x-2)}{x(3x-6)}$

- a)  $\frac{x+6}{3x}$
- b)  $\frac{2x+4}{3x^2-6}$
- c)  $\frac{-2}{x}$
- d)  $\frac{x+6}{x}$
- e)  $\frac{x^2+4x-12}{3x^2-6x}$

4. Subtract:  $\frac{3x+10}{x} - \frac{x+2}{2x}$

- a)  $\frac{4x+8}{3x}$
- b)  $\frac{5x+18}{2x}$
- c)  $\frac{2x+8}{x}$
- d)  $\frac{4x+12}{3x}$
- e)  $\frac{x^2+4x-12}{x-2x}$

2. Add:  $\frac{x+2}{x+3} + \frac{x+4}{x+3}$

- a)  $\frac{2x+6}{x+3}$
- b)  $\frac{2x+6}{2x+6}$
- c) 2
- d)  $\frac{x+6}{x+3}$
- e)  $2x+6$

5. Multiply:  $\frac{x+3}{x(x+4)} \cdot \frac{x}{3+x}$

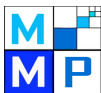
- a)  $\frac{x+6}{3x}$
- b)  $\frac{2x+4}{3x^2-6}$
- c)  $\frac{1}{x+4}$
- d)  $\frac{x+6}{x}$
- e)  $\frac{x^2+4x-12}{3x^2-6x}$

3. Divide:  $\frac{x(x+3)}{x+4} \div \frac{x}{4+x}$

- a)  $\frac{x^2(x+3)}{(x+4)^2}$
- b)  $x+3$
- c)  $\frac{2x(x+3)}{x+4}$
- d)  $\frac{x+6}{x}$
- e)  $\frac{x^2+4x-12}{3x^2-6x}$

6. Multiply:  $(x+7)(3x-2)$

- a)  $4x+5$
- b)  $3x^2-14$
- c)  $3x^2-5x+14$
- d)  $3x^2+19x+14$
- e)  $3x^2+19x-14$



7. Evaluate  $\frac{3-x}{x+5}$  if  $x = -2$
- $\frac{3}{5}$
  - $\frac{5}{3}$
  - $-\frac{3}{5}$
  - $-\frac{5}{3}$
  - 1
8. Factor:  $a^2 - 5a + 6$
- $(a + 2)(a + 3)$
  - $(a - 2)(a - 3)$
  - $(a - 5)(a - 6)$
  - $(a + 5)(a - 1)$
  - $(a - 6)(a + 1)$
9. Factor:  $6x^2 + x - 2$
- $(6x - 2)(x + 1)$
  - $(3x - 2)(2x + 1)$
  - $(6x - 1)(x + 2)$
  - $(3x + 2)(2x - 1)$
  - $(3x + 2)(2x + 1)$
10. Factor:  $4x^2 + 12xy + 9y^2$
- $(2x + 3)(2x - 3)$
  - $(2x + 3y)(2x - 3y)$
  - $(2x + 3y)^2$
  - $(4x + 9y)(x + y)$
  - $(2x - 3y)^2$
11. Simplify:  $3(x + 2) - (x - 3)$
- $3x + 3$
  - $2x - 1$
  - $2x + 5$
  - 3
  - $2x + 9$
12. Completely Factor:  $16x^2 - 144y^2$
- $16(x - 3y)(x + 3y)$
  - $(4x + 12y)(4x - 12y)$
  - $(16x - 144y)(16x + 144y)$
  - $(8x - 12y)(8x + 12y)$
  - $(16x - y)(x - 144y)$
13. Divide:  $(x^3 + 2x^2 - 10x - 15) \div (x - 3)$
- $x^3 + 4x^2 - 2x + 1$
  - $x^3 - 4x^2 + 2x + 1$
  - $x^2 + 5x + 5$
  - $x^2 - 5x - 5$
  - $x + 3$
14. Find the slope of the line which passes through  $(-3, 4)$  and  $(4, 7)$ .
- $\frac{7}{3}$
  - $\frac{3}{7}$
  - $\frac{11}{1}$
  - $\frac{10}{8}$
  - $-\frac{3}{7}$
15. Find the equation of the line which passes through  $(1, -3)$  and  $(4, 3)$ .
- $y = -2x - 6$
  - $y = 2x - 5$
  - $y = \frac{1}{2}x - 5$
  - $y = -\frac{1}{2}x + 6$
  - $y = -3x + 4$
16. Find the equation of the line which passes through  $(2, -1)$  and has a slope of  $-2$ .
- $y = -2x + 3$
  - $y = 2x - 3$
  - $y = -2x - 4$
  - $y = 2x + 3$
  - $y = -2x - 2$
17. Write the slope-intercept form of  $y - 5 = 3(x - 2)$ .
- $y = 3x + 3$
  - $y = 5x + 1$
  - $y = 5x - 2$
  - $y = 3x - 1$
  - $y = 3x - 6$
18. Find the x-intercept for the line  $5x + 4y = 20$ .
- $(0, 4)$
  - $(0, 0)$
  - $(-4, 0)$
  - $(0, -4)$
  - $(4, 0)$

19. Solve:  $x^2 - 3x + 2 = 0$ .
- $x = 3, 2$
  - $x = 1, -2$
  - $x = -1, 2$
  - $x = 1, 2$
  - $x = -1, -2$
20. Solve using the Quadratic formula:  
 $2x^2 + 5x - 4 = 0$ .
- $\frac{-5 \pm \sqrt{57}}{4}$
  - $\frac{5 \pm \sqrt{57}}{4}$
  - $\frac{-5 \pm \sqrt{57}}{2}$
  - $\frac{-5 \pm \sqrt{-7}}{4}$
  - $\frac{-5 \pm \sqrt{37}}{4}$
21. Solve  $A = \frac{1}{2}h(b_1 + b_2)$  for  $b_2$ .
- $\frac{2A - b_1h}{h}$
  - $\frac{2A - b_1}{h}$
  - $\frac{2A + b_1h}{h}$
  - $\frac{2A + b_1}{h}$
  - $\frac{A - b_1h}{h}$
22. Rewrite with fractional exponents:  
 $\sqrt{36}$
- $6^{1/2}$
  - $36^{1/4}$
  - $36^{1/2}$
  - 6
  - $6^2$

23. Evaluate:  $25^{5/2}$
- 62.5
  - 125
  - 3125
  - 25
  - 10

24. Simplify:  $\sqrt[4]{\frac{81x^5y^8}{x^6}}$
- $\frac{3xy\sqrt[4]{xy}}{x}$
  - $\frac{3y\sqrt[4]{xy}}{x^6}$
  - $\frac{3y\sqrt[4]{xy}}{x}$
  - $3y^2\sqrt[4]{1/x}$
  - $3xy^2\sqrt[4]{1/x}$

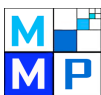
25. Multiply and simplify:

$$\sqrt[3]{81x^5y^6} \cdot \sqrt[3]{3x^2y^6}$$

- $27x^7y^{12}\sqrt[3]{9x}$
- $243x^7y^{12}$
- $9x^2y^2\sqrt[3]{3xy}$
- $3xy\sqrt[3]{9x}$
- $3x^2y^4\sqrt[3]{9x}$

26. Simplify:  $\frac{x^{-3}}{3y^{-2}}$

- $\frac{x^3}{3y^2}$
- $\frac{y^2}{3x^3}$
- $\frac{3y^2}{x^3}$
- $\frac{x^{-3}}{3y^{-2}}$
- $3x^3y^2$



27. Evaluate  $|2x - 7|$  if  $x = 3$

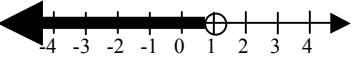
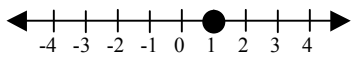
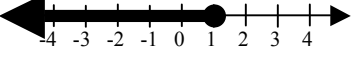
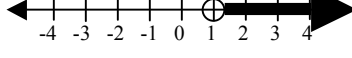
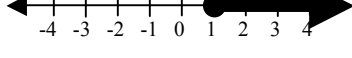
- a) 1
- b) -1
- c) 16
- d) -16
- e) 13

28. Solve:  $|2y + 1| = 5$

- a)  $y = 2$
- b)  $y = -3$
- c)  $y = 2, -3$
- d)  $y = -2, 3$
- e)  $y = 3$

29. Which is a solution for:

$$9 - x > 5x + 3$$

- a) 
- b) 
- c) 
- d) 
- e) 

30. Which is a solution for:

$$\begin{cases} x > 2 \\ y \leq -1 \end{cases}$$

- a) (-3, 2)
- b) (-3, -2)
- c) (3, 2)
- d) (3, -2)
- e) (2, -1)

31. Which is a solution for:

$$\begin{cases} y < 2x - 1 \\ y \leq -\frac{1}{3}x + 3 \end{cases}$$

- a) (-3, 2)
- b) (-3, -2)
- c) (3, 2)
- d) (-3, 3)
- e) (6, 2)

32. Find the solution:

$$\begin{cases} 3x + 2y = 9 \\ 2x - 2y = 6 \end{cases}$$

- a) (3, .667)
- b) (0, -3)
- c) (1, .8)
- d) (5, 0)
- e) (3, 0)

33. Find the equation of the line parallel to  $y = 3x - 4$  and going through the point (5,3).

- a)  $y + 3 = 3(x + 5)$
- b)  $y - 3 = 3(x - 5)$
- c)  $y - 3 = (-1/3)(x - 5)$
- d)  $y + 3 = (-1/3)(x + 5)$
- e)  $y - 4 = 3(x - 4)$

34. Find the equation of the line that is perpendicular to  $y = -\frac{1}{3}x + 2$  and goes through (3,-1).

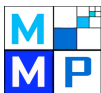
- a)  $y = -\frac{1}{3}x + 1$
- b)  $y = 3x + 10$
- c)  $y = 3x - 10$
- d)  $y = -\frac{1}{3}x - 2$
- e)  $y = 3x + 2$

35. Solve:  $5x - 44 = -2x + 5$

- a) 7
- b)  $\frac{49}{3}$
- c)  $\frac{39}{3}$
- d) -7
- e)  $-\frac{49}{3}$

36. Solve:  $\frac{2}{9}x + \frac{1}{7} = \frac{1}{3}x + \frac{1}{14}$

- a)  $\frac{6}{7}$
- b)  $1\frac{1}{16}$
- c)  $\frac{3}{10}$
- d)  $\frac{9}{14}$
- e)  $2\frac{9}{10}$



37. Solve:  $3(x - 9) - x = 5(x + 12)$   
 a) 4.7  
 b) -29  
 c) -7  
 d) -87  
 e) 24
38. Factor:  $x^2 + 6x + 9$   
 a)  $(x + 2)(x + 3)$   
 b)  $(x + 3)(x + 3)$   
 c)  $(x + 9)(x + 1)$   
 d)  $(x + 1)(x + 3)$   
 e)  $(x + 4)(x + 5)$
39. Multiply:  $6ab^2c^3 \cdot 2yac^3$   
 a)  $12ab^2c^3y$   
 b)  $12a^2b^2c^9y$   
 c)  $12b^2y$   
 d)  $12a^2b^2c^6y$   
 e)  $12a^2b^2cy$
40. Simplify:  $\frac{x^3y^4}{x^{-2}y^8}$   
 a)  $x/y^4$   
 b)  $x^5/y^{12}$   
 c)  $xy^4$   
 d)  $xy^{-4}$   
 e)  $x^5y^{-4}$
41. Simplify:  $(x^7y^3)^5$   
 a)  $x^{75}y^{35}$   
 b)  $x^{7/5}y^{3/5}$   
 c)  $x^{35}y^{15}$   
 d)  $x^{5/7}y^{5/3}$   
 e)  $x^{12}y^8$
42. Rewrite  $3x - 2y = 4$  in slope-intercept form.  
 a)  $y = 3x - 4$   
 b)  $y = -3x - 4$   
 c)  $y = \frac{3}{2}x - 2$   
 d)  $y = -\frac{3}{2}x + 2$   
 e)  $y = -3x + 4$
43. Rewrite  $y = 5x - 6$  in standard form.  
 a)  $5x + y = -6$   
 b)  $5x - y = 6$   
 c)  $5x + y = 6$   
 d)  $-5x + y = 6$   
 e)  $-5x - y = -6$
44. Simplify:  $\frac{(x + 2)(x + 3)}{2x} \cdot \frac{(x + 3)}{4x + 6}$   
 a)  $\frac{(x + 2)(2x + 3)}{x}$   
 b)  $\frac{(x + 2)(x + 3)^2}{x}$   
 c)  $\frac{(x + 2)(x + 3)}{2x}$   
 d)  $\frac{(x + 2)(x + 3)^2}{x}$   
 e)  $\frac{(x + 2)(x + 3)}{4x}$
45. Rationalize the denominator:  $\frac{6}{\sqrt{x}}$   
 a)  $6x$   
 b)  $6\sqrt{x}$   
 c)  $\frac{6\sqrt{x}}{x}$   
 d)  $6x^2$   
 e)  $\frac{6x}{\sqrt{x}}$