

## BEGINNING ALGEBRA REVIEW

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The Mathematics Department at Onondaga Community College recommends that students who have taken at least one year of Algebra review this material.

1.  $-8 + (-6) =$

2.  $-9 + (+4) =$

3.  $-7 - (-8) =$

4.  $-6 - 9 =$

5.  $(-4)(-5) =$

6.  $\frac{-26}{-2} =$

7.  $\frac{3(-2) - 2(-5)}{-6 + 5} =$

8.  $5 - 2[3 - 2(3 - 7)] =$

9.  $4x - 5 = -21$

10.  $-6 = \frac{x}{-3}$

11.  $6x - 3(4x - 5) = 5(9 - x)$

12.  $3 - 2x \leq 6$

13.  $(y^5)(y^4)$

14.  $5^{-2}$

15.  $(-4y)^2$

16.  $\frac{x^{-3}}{x^{-6}}$

17. Add:  $(3x^3 - x^2 - x) + (x^3 + 7x^2 - 1)$
18. Subtract:  $(-x^2 + x) - (-x^2 + 12x + 7)$
19. Multiply:  $(3x - 1)(4x + 3)$
20. Multiply:  $(2x - 1)(2x^2 - 3x + 1)$
21. Factor:  $100 - x^2$
22. Factor:  $4x^2 - 11x + 6$
23. Solve:  $x^2 + 8x + 15 = 0$
24. Graph:  $y = -2x + 1$
25. Graph:  $x = -3$
26. Solve for x and y:  $x + y = 6$   
 $x - y = 4$

BEGINNING ALGEBRA REVIEW  
ANSWERS TO THE PROBLEMS

1. -14      2. -5      3. 1      4. -15

5. 20      6. 13

$$7. \frac{-6 + 10}{-1} = \frac{4}{-1} = -4$$

$$\begin{aligned} 8. & 5 - 2[3 - 2(3 - 7)] \\ & 5 - 2[3 - 2(-4)] \\ & 5 - 2[3 + 8] \\ & 5 - 2[11] \\ & 5 - 22 = -17 \end{aligned}$$

$$\begin{aligned} 9. & 4x - 5 = -21 \\ & 4x = 16 \\ & x = -4 \end{aligned}$$

$$\begin{aligned} 10. & (-3) - 6 = \frac{x}{-3}(-3) \\ & -18 = x \end{aligned}$$

$$\begin{aligned} 11. & 6x - 12x + 15 = 45 - 5x \\ & -6x + 15 = 45 - 5x \\ & -x = 30 \\ & x = -30 \end{aligned}$$

$$\begin{aligned} 12. & 3 - 2x \leq 6 \\ & -2x \leq 3 \\ & x \geq -\frac{3}{2} \end{aligned}$$

$$13. y^9$$

$$14. \frac{1}{5^2} = \frac{1}{25}$$

$$15. (-4y)^2 = (-4y)(-4y) = 16y^2$$

$$16. \frac{x^{-3}}{x^{-6}} = x^{-3-(-6)} = x^{-3+6} = x^3$$

$$17. \frac{3x^3 - x^2 - x}{x^3 + 7x^2 - 1} - \frac{1}{4x^3 + 6x^2 - x - 1}$$

$$18. \frac{-x^2 + x}{x^2 - 12x - 7} - \frac{1}{11x - 7}$$

$$19. \frac{3x - 1}{\frac{4x + 3}{12x^2 - 4x} - \frac{9x - 3}{12x^2 + 5x - 3}}$$

$$20. \frac{2x^2 - 3x + 1}{\frac{2x - 1}{4x^3 - 6x^2 + 2x} - \frac{2x^2 + 3x - 1}{4x^3 - 8x^2 + 5x - 1}}$$

$$21. 100 - x^2 = (10 - x)(10 + x)$$

$$22. 4x^2 - 11x + 6 = (4x - 3)(x - 2)$$

$$23. \begin{aligned} x^2 + 8x + 15 &= 0 \\ (x + 3)(x + 5) &= 0 \\ x + 3 = 0 \quad x + 5 &= 0 \\ x = -3 \quad x &= -5 \end{aligned}$$

24.

25.

$$\begin{array}{l} 26. \quad x + y = 6 \\ \quad \quad \frac{x - y = 4}{2x = 10} \\ \quad \quad x = 5 \end{array} \quad \begin{array}{l} x + y = 6 \\ 5 + y = 6 \\ \quad y = 1 \end{array} \quad (5,1)$$