

## INTERMEDIATE ALGEBRA REVIEW

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The Mathematics Department at Onondaga Community College recommends that students who have taken Intermediate Algebra or Course III review this material prior taking the Placement Exam.

1.  $|7 - 2x| = 11$

2.

$$-5 \leq 3x - 2 \leq 4 \text{ (graph)}$$

4.  $\frac{7x - 5}{2} + 7 = 4x$

5.  $A = -4h(x + 5)$  (For  $x$ )

6. Factor:  $36x^3 + 12x^2 - 48x$

7. Factor:  $a^4 - b^4$

8. Factor:  $x^3 + 64y^3$

9. Divide:  $(3x^2 + 7x + 7)$  by  $(3x + 1)$

10. Solve:  $3x^2 - 4x - 3 = 0$

11. Simplify:  $\frac{4x - 48}{x^2 - 144}$

12. 
$$\frac{\frac{x + 5}{3x^2}}{\frac{x^2 - 25}{6x^3}}$$

13.  $\frac{2x}{x+2} + \frac{5}{x-5}$
14.  $\left( \frac{x^2 - 9}{2x + 2} \right) \cdot \left( \frac{x^2 + 2x + 1}{(x - 3) \cdot (x + 1)} \right)$
15.  $\sqrt{2x+1} + 1 = 4$
16.  $(4\sqrt{5} - 2) \cdot (2\sqrt{5} + 4)$
17.  $\sqrt{125} + 2\sqrt{20} - 4\sqrt{45}$
18.  $\left( \sqrt{14x^3y} \right) \cdot \left( \sqrt{7x^3y^3} \right)$
19.  $\sqrt{\frac{375x^5}{5x}}$
20. Find the slope of the line  $7x + 3y = 21$ .
21. Find the slope of the line containing the points  $(-3, 5)$  and  $(6, -1)$ .
22. Find the equation of the line passing through  $(-6, 2)$  with a slope of  $-2$ .
23. Write the equation of the line through  $(2, 5)$  and perpendicular to  $y = 2x + 4$ .
24. Write  $-12 - \sqrt{-121}$  in standard complex number form.
25. Solve for  $x$ ,  $y$  and  $z$
- $$\begin{aligned} 2x - 3y + z &= 1 \\ x + 2y + z &= -1 \\ 3x - y + 3z &= 4 \end{aligned}$$
26. Graph  $y \geq 3x + 1$

# INREMEDIA ALGEBRA REVIEW

## ANSWERS TO THE PROBLEMS

1.  $|7 - 2x| = 11$

$$7 - 2x = 11$$

$$-2x = 4$$

$$x = -2$$

$$7 - 2x = -11$$

$$-2x = -18$$

$$x = 9$$

2.  $|3x - 4| > 2$

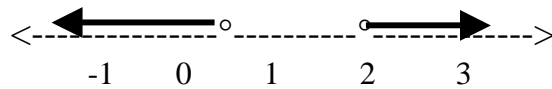
$$3x - 4 > 2 \quad \text{or} \quad 3x - 4 < -2$$

$$3x > 6$$

$$x > 2$$

$$3x < 2$$

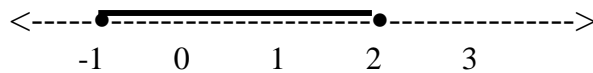
$$x < \frac{2}{3}$$



3.  $-5 \leq 3x - 2 \leq 4$

$$-3 \leq 3x \leq 6$$

$$-1 \leq x \leq 2$$



4.  $\frac{7x - 5}{2} + 7 = 4x$

$$7x - 5 + 14 = 8x$$

$$9 = x$$

5.  $A = -4h(x + 5)$

$$\frac{A}{-4h} = x + 5$$

$$\frac{A}{-4h} - 5 = x$$

6.  $36x^3 + 12x^2 - 48x$

$$12x(3x^2 + x - 4)$$

$$12x(3x + 4)(x - 1)$$

7.  $a^4 - b^4$   
 $(a^2 - b^2)(a^2 + b^2)$



20.  $7x + 3y = 21$

25.  $2x - 3y + z = 1$

$$x + 2y + z = -1$$

$$3x - y + 3z = 4$$

$$-x + 5(-1) = -2$$

$$-x = 3$$

$$x = -3$$

$$(-3, -1, 4)$$

$$-2x + 3y - z = -1$$

$$x + 2y + z = -1$$

$$-x + 5y = -2$$

$$x + 2y + z = -1$$

$$-3 + 2(-1) + z = -1$$

$$-5 + z = -1$$

$$z = 4$$

$$-3x - 6y - 3z = 3$$

$$3x - y + 3z = 4$$

$$-7y = 7$$

$$y = -1$$

26.