INTERMEDIATE ALGEBRA REVIEW

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. $-5 \le 3x - 2 \le 4$ (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. $\dfrac{\dfrac{x + 5}{3x^2}}{\dfrac{x^2 - 25}{6x^3}}$

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 though (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. $|7 - 2x| = 11$

$7 - 2x = 11$ $\qquad$ $7 - 2x = -11$

$-2x = 4$ $\qquad$ $-2x = -18$

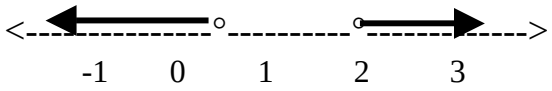
$x = -2$ $\qquad$ $x = 9$

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

$3x - 4 > 2$ or $3x - 4 < -2$

$3x > 6$ $\qquad$ $3x < 2$

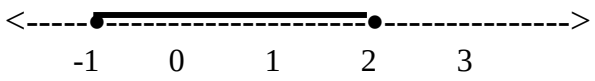
$x > 2$ $\qquad$ $x < \frac{2}{3}$



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

$-3 \le 3x \le 6$

$-1 \le x \le 2$



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. $2x - 3y + z = 1$ $-2x + 3y - z = -1$ $-3x - 6y - 3z = 3$

$x + 2y + z = -1$ $x + 2y + z = -1$ $3x - y + 3z = 4$

$3x - y + 3z = 4$ $-x + 5y = -2$ $-7y = 7$

$y = -1$

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

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

$x = -3$ $-5 + z = -1$

$z = 4$

$(-3, -1, 4)$

26.