# NASSAU COMMUNITY COLLEGE
# PLACEMENT TESTING ALGEBRA

### Algebra Review

For 1 to 4 perform the indicated operations and simplify

1. $4(x^2 - x) + 5 - 2x(x - 3) + x^2(6 + x)$

2. $(4z - 1)^2$

3. $\dfrac{20a^2b^4 + 15a^3b^2 - 10a^4b}{5a^2b}$

4. $\dfrac{x+4}{4} + \dfrac{2x-3}{3}$

5. Find the value of $3a^2 - 4ab - 2b^2$ when $a = -1$ and $b = 4$

6. Factor completely $4r^2 - 49$

7. Factor completely $2x^2 + 14x + 24$

8. Solve $6z - 2(z + 4) = 3(9 - z)$

9. Solve $a^2 - 7a - 30 = 0$

10. For the equation of the line, determine if the indicated point lies on the line.

$$y = -3x - 10 \quad (-4, -2)$$

11. Solve the system of equations:
$$4x - 3y = -19$$
$$2x + y = 13$$

12. Solve the inequality:
$$3k + 7 < 2k + 9$$

13. Simplify the radical expression:
$$3\sqrt{75} + 2\sqrt{27}$$

14. Simplify: $(2x^2 + 9x - 6) - (8x^2 + 7x + 6)$

15. Solve the following equation for h: $V = \frac{1}{3}\pi r^2 h$

16. Solve for $x$: $\frac{2x}{6} = 9$

17. Divide and write answer in lowest terms: $\frac{-5k^2}{2k^5} \div \frac{(2k)^3}{10k^5}$

18. If the sum of a number and 4 is subtracted from 6, the result is the same as twice the number increased by 5. Find the number.

19. Complete the ordered pair for the equation: $y = -5x - 9$    $(-2, \quad )$

20. Write the expression in lowest terms: $\frac{a^2 - 9a}{(a+8)(a-9)}$

## Algebra Answers

1. $x^3 + 8x^2 + 2x + 5$
2. $16z^2 - 8z + 1$
3. $4b^3 + 3ab - 2a^2$
4. $\frac{11x}{12}$
5. -13
6. $(2r - 7)(2r + 7)$
7. $2(x + 3)(x + 4)$
8. $z = 5$
9. $a = 10 \; and \; a = -3$
10. No
11. $x = 2 \; and \; y = 9$
12. $k < 2$
13. $21\sqrt{3}$
14. $-6x^2 + 2x - 12$
15. $h = \frac{3V}{\pi r^2}$
16. $x = 27$
17. $\frac{-25}{8k}$
18. $-1$
19. $(-2,\underline{1})$
20. $\frac{a}{a+8}$