

ALGEBRA 2 ~ REVIEW for TEST 5

(NO CALCULATOR)

Simplify:

1. $(2x)^3 + 2x^3$

2. $(-6n - 13n^2) + (-3n + 9n^2)$

3. $(8x^2 - 3x) - (4x^2 + 5x - 3)$

4. $-3r^3y^2(-3ry^5 + 2r^3y^4 - 5r^2)$

5. $(y - 8)^2$

6. $(x - 8)(x + 3)$

7. $(x + 2)(x - 3)(x - 1)$

8. $(x + y)(x^2 - 3xy + 2y^2)$

FACTOR EACH POLYNOMIAL COMPLETELY!

9. $2t^3 + 32t^2 + 128t$

10. $x^2 - 4$

11. $a^2 - a - 6$

12. $x^4 - 16$

13. $3x^2 - 27$

14. $5y^3 - 40y^2 + 60y$

15. $4x^2 - 9$

16. $5x^2 - 20$

17. $2x^2 - 7x + 6$

18. $5x^2 + 12x - 9$

19. $4ax + 14ay - 10bx - 35by$

20. $10w^2 - 14wv - 15w + 21v$

Simplify.

21. $\pm\sqrt{169}$

22. $-\sqrt{289m^6n^2}$

23. $\sqrt{64a^{18}b^2c^8}$

24. $\sqrt[3]{125x^6y^{12}}$

25. $\sqrt[3]{-64x^{18}}$

26. $\sqrt[5]{(x-2)^5}$

27. $\sqrt[4]{(5x+2)^8}$

28. $\sqrt{x^2 + 8x + 16}$

CUMULATIVE REVIEW PROBLEMS:

29. Solve $|q - 3| - 7 = 2$

30. Solve $3|x - 2| < 15$

31. Solve the system of equations using substitution, elimination, or graphing.

$$3x + 2y = 12$$

$$x - 2y = 4$$

Write equations for the following in slope-intercept form:

32. Perpendicular to $2x - 4y = 7$ and passing through the point $(-4,6)$.

33. The line with an x-intercept of 3, and a y-intercept of -2.

Write equations for the following in slope-intercept form:

34. The line parallel to $x + 5y = 13$ and passing through $(6, 7)$.

Simplify the following:

35. $(3r^5w^3)^{-3}$

36. $(4a^3c^2)^3(-3ac^4)^2$

37. $\frac{16(x^5y^0)^3}{8(xy^2)^2}$

38. $\frac{4m^5y^6}{-12my^3}$

39. $\frac{a^{-3}b^4}{a^3b^{-2}}$

40. $\left(\frac{x^2y}{xy^3}\right)^{-2}$

Solve by graphing the lines, determining the vertices, and finding the maximum and minimum. (Calc to find vertices only.)

41. $x + y \leq 20$

$$x \geq 3$$

$$x \leq 8$$

$$f(x, y) = 10x + 7y$$

ANSWER KEY FOR ALGEBRA 2 TEST 5 Review:

- $10x^3$
- $9r^4y^7 - 6r^6y^6 + 15r^5y^2$
- $x^3 - 2x^2 - 5x + 6$
- $(x + 2)(x - 2)$
- $3(x + 3)(x - 3)$
- $5(x + 2)(x - 2)$
- $(2a - 5b)(2x + 7y)$
- $-17m^3n$
- $-4x^6$
- $x + 4$
- $(4, 0)$
- $y = -\frac{1}{5}x + \frac{41}{5}$
- $\frac{2x^{13}}{y^4}$
- $\frac{y^4}{x^2}$
- Vertices: $(3, 0), (8, 0), (3, 17)$ and $(8, 12)$ Max: 164 at $(8, 12)$, Min: unbounded
Check graph with teacher.
- $-9n - 4n^2$
- $y^2 - 16y + 64$
- $x^3 - 2x^2y - xy^2 + 2y^3$
- $(a - 3)(a + 2)$
- $5y(y - 6)(y - 2)$
- $(2x - 3)(x - 2)$
- $(2w - 3)(5w - 7v)$
- $8a^9bc^4$
- $x - 2$
- $q = -6, 12$
- $y = -2x - 2$
- $\frac{1}{27r^{15}w^9}$
- $-\frac{m^4y^3}{3}$
- $4x^2 - 8x + 3$
- $x^2 - 5x - 24$
- $2t(t + 8)(t + 8)$
- $(x^2 + 4)(x + 2)(x - 2)$
- $(2x - 3)(2x + 3)$
- $(5x - 3)(x + 3)$
- ± 13
- $5x^2y^4$
- $(5x + 2)^2$ or $25x^2 + 20x + 4$
- $-3 < x < 7$
- $y = \frac{2}{3}x - 2$
- $576a^{11}c^{14}$
- $\frac{b^6}{a^6}$

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