

ALGEBRA REVIEW

Proficiency Test Preparation Algebra Review 3

Simplify by combining like terms...

1. $2x^2 - 5xy + 11xy + 3$

2. $2(n^2 - 3n) + 4(-n^2 + 2n)$

Solve for x...

3. $7x + 11 = 32$

4. $\frac{1}{2}x - 4 = 6$

Simplify each expression...

5. $(8a^4b)^2$

6. $-(7xy^2)^0$

7. $(7x^{-2}y/xy^{-1})^2$

8. $(2ab^3/b^2)^4$

Simplify the polynomials...

9. $15y - y^3 + 2y^2 - 10y^2 + 2y - 16$

10. $2x + 4x^2 + 6x + 9x^3$

Add or subtract each polynomial...

11. $(-4x^2 + 2x - 1) + (3x^2 - x + 2) + (x - 8)$

12. $(x^3 + 4x^2 - 7) - (3x^3 + x^2 + 2x + 1)$

Multiply and simplify...

13. $-7(2x^2 + 3x)$

14. $x(x^2 + 1) - 1(x^2 + 1)$

15. $(2x + 1)(x - 4)$

16. $x(x + 4)(x - 7)$

17. $(2x + 1)(x^2 - 7x + 2)$

18. $(x - 1)(x - 2)(x - 3)$

Divide and simplify...

19. $(x^2 + x - 6) / (x + 3)$

20. $(4a^2 - 21a + 2) / (a - 6)$

21. $(x^3 + 27) / (x + 3)$

22. $(x^3 - 8) / (x - 2)$

Simplify each radical...

23. $-\sqrt{121}$

24. $\sqrt{18}$

25. $\sqrt{162}$

Simplify each radical expression...

26. $\sqrt{7} + 6\sqrt{7} - 2\sqrt{7}$

27. $2\sqrt{x} - 3\sqrt{x} + 7\sqrt{x}$

28. $\sqrt{32} - \sqrt{18}$

29. $3\sqrt{5} - \sqrt{45}$

Multiply each radical expression...

30. $\sqrt{2} * (3 - 4\sqrt{2})$

31. $\sqrt{y} * (\sqrt{x} + 2\sqrt{y})$

Rationalize and divide each radical expression...

32. $5 / \sqrt{2}$

33. $\sqrt{18} / \sqrt{2}$

Factor each polynomial.

34. $7y^3 - 70y^2 + 168y$

35. $2x^3 + 12x^2 - 32x$

36. $x^2 - 14x + 49$

37. $x^2 - 20x + 100$

What is the slope?

38. $(-6,2) (1,3)$

39. $(4,2) (-1, \frac{1}{2})$

Write an equation for the line based on the given information...

40. $(0, 2) m = 4$

41. $(0, -3) m = -\frac{3}{4}$

42. $(1, 3) (2, -4) b = 0$

43. $(-3, 1) (2,0) b = -1$

44. $(3, 4) (6, 2)$

45. $(-2, 6) (3, 1)$

Answers to Algebra Review 3

Check your answers. If they do not match, try re-working the problem.

Tutorials are available for additional assistances.

Bring your work to the Math Center with specific questions.

1. $2x^2 + 6xy + 3$

- <http://patrickjmt.com/polynomials-adding-subtracting-multiplying-and-simplifying-ex-1/>
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- <http://patrickjmt.com/polynomials-adding-subtracting-multiplying-and-simplifying-ex-3/>

2. $-2n^2 + 2n$

- <http://patrickjmt.com/polynomials-adding-subtracting-multiplying-and-simplifying-ex-1/>
- <http://patrickjmt.com/polynomials-adding-subtracting-multiplying-and-simplifying-ex-2/>
- <http://patrickjmt.com/polynomials-adding-subtracting-multiplying-and-simplifying-ex-3/>

3. $x = 3$

- <http://www.youtube.com/watch?v=Zj-9Zc9yKYU>

4. $x = 20$

- <http://www.youtube.com/watch?v=Zj-9Zc9yKYU>

5. $64a^8b^2$

- <http://patrickjmt.com/exponents-applying-the-rules-of-exponents-basic-ex-1/>
- <http://patrickjmt.com/exponents-applying-the-rules-of-exponents-basic-ex-2/>
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6. -1

- <http://patrickjmt.com/exponents-applying-the-rules-of-exponents-basic-ex-1/>
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7. $\frac{49y^4}{x^6}$

- <http://patrickjmt.com/exponents-applying-the-rules-of-exponents-basic-ex-1/>
- <http://patrickjmt.com/exponents-applying-the-rules-of-exponents-basic-ex-2/>
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8. $16a^4b^4$

- <http://patrickjmt.com/exponents-applying-the-rules-of-exponents-basic-ex-1/>
- <http://patrickjmt.com/exponents-applying-the-rules-of-exponents-basic-ex-2/>
- <http://patrickjmt.com/exponents-applying-the-rules-of-exponents-basic-ex-3/>

9. $-y^3 - 8y^2 + 17y - 16$

- <http://patrickjmt.com/solving-quadratic-equations-by-factoring-basic-examples/>
- <http://www.yourteacher.com/free-video-jwp.php?vid=7070>
- <http://www.youtube.com/watch?v=65BAsV0SK3k&feature=relmfu>

10. $9x^3 + 4x^2 + 8x$

- <http://patrickjmt.com/solving-quadratic-equations-by-factoring-basic-examples/>
- <http://www.yourteacher.com/free-video-jwp.php?vid=7070>
- <http://www.youtube.com/watch?v=65BAsV0SK3k&feature=relmfu>

11. $-x^2 + 2x - 7$

- <http://patrickjmt.com/polynomials-adding-subtracting-multiplying-and-simplifying-ex-1/>
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- <http://patrickjmt.com/polynomials-adding-subtracting-multiplying-and-simplifying-ex-3/>

13. $-14x^2 - 21x$ 31. $\sqrt{xy} + 2y$

- <http://www.youtube.com/watch?v=9teKXGoWlQM&feature=relmfu>
- <http://www.youtube.com/watch?v=XfaWLVLeJM&feature=relmfu>

15. $2x^2 - 7x - 4$

- <http://www.youtube.com/watch?v=9teKXGoWlQM&feature=relmfu>
- <http://www.youtube.com/watch?v=XfaWLVLeJM&feature=relmfu>

17. $2x^3 - 13x^2 - 3x + 2$

- <http://www.youtube.com/watch?v=9teKXGoWlQM&feature=relmfu>
- <http://www.youtube.com/watch?v=XfaWLVLeJM&feature=relmfu>

19. $x - 2$

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21. $x^2 - 3x + 9$

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12. $-2x^3 + 3x^2 - 2x - 8$

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14. $x^3 - x^2 + x - 1$

- <http://www.youtube.com/watch?v=9teKXGoWlQM&feature=relmfu>
- <http://www.youtube.com/watch?v=XfaWLVLeJM&feature=relmfu>

16. $x^3 - 3x^2 - 28x$

- <http://www.youtube.com/watch?v=9teKXGoWlQM&feature=relmfu>
- <http://www.youtube.com/watch?v=XfaWLVLeJM&feature=relmfu>

18. $x^3 - 6x^2 + 11x - 6$

- <http://www.youtube.com/watch?v=9teKXGoWlQM&feature=relmfu>
- <http://www.youtube.com/watch?v=XfaWLVLeJM&feature=relmfu>

20. $4a + 3 + \frac{20}{a - 6}$

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22. $x^2 + 2x + 4$

- <http://patrickjmt.com/polynomials-adding-subtracting-multiplying-and-simplifying-ex-1/>
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23. -11

- <http://patrickjmt.com/radical-notation-and-simplifying-radicals/>
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- <http://patrickjmt.com/finding-domains-of-functions-involving-radicals-square-roots-to-be-more-precise-example-1/>

25. $9\sqrt{2}$ 33. 3

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27. $6\sqrt{x}$

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29. 0

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24. $3\sqrt{2}$

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26. $5\sqrt{7}$

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28. $\sqrt{2}$

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30. $3\sqrt{2} - 8$

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31. $\sqrt{xy} + 2y$

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33. 3

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- <http://patrickjmt.com/finding-domains-of-functions-involving-radicals-square-roots-to-be-more-precise-example-1/>

35. $2x(x + 8)(x - 2)$

- <http://www.youtube.com/user/yourteachermathhelp#p/search/1/Nj9GgAM-dTQ>
- http://www.youtube.com/user/yourteachermathhelp#p/search/5/AcCN_isD3PY
- <http://www.youtube.com/watch?v=COClk0irz14&feature=related>

37. $(x - 10)(x - 10)$ OR $(x - 10)^2$

- <http://www.youtube.com/user/yourteachermathhelp#p/search/1/Nj9GgAM-dTQ>
- http://www.youtube.com/user/yourteachermathhelp#p/search/5/AcCN_isD3PY
- <http://www.youtube.com/watch?v=COClk0irz14&feature=related>

32. $\frac{5\sqrt{2}}{2}$

- <http://patrickjmt.com/radical-notation-and-simplifying-radicals/>
- <http://patrickjmt.com/rewriting-radicals-using-complex-numbers/>
- <http://patrickjmt.com/radicals-simplifying-radical-expressions-involving-variables-ex-1/>
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- <http://patrickjmt.com/finding-domains-of-functions-involving-radicals-square-roots-to-be-more-precise-example-1/>

34. $7y(y - 4)(y - 6)$

- <http://www.youtube.com/user/yourteachermathhelp#p/search/1/Nj9GgAM-dTQ>
- http://www.youtube.com/user/yourteachermathhelp#p/search/5/AcCN_isD3PY
- <http://www.youtube.com/watch?v=COClk0irz14&feature=related>

36. $(x - 7)(x - 7)$ OR $(x - 7)^2$

- <http://www.youtube.com/user/yourteachermathhelp#p/search/1/Nj9GgAM-dTQ>
- http://www.youtube.com/user/yourteachermathhelp#p/search/5/AcCN_isD3PY
- <http://www.youtube.com/watch?v=COClk0irz14&feature=related>

38. $\frac{1}{7}$

- http://www.youtube.com/watch?v=9bm1_IJ00IQ

39. $\frac{1.5}{5}$ OR $\frac{3}{10}$

- http://www.youtube.com/watch?v=9bm1_IJ00IQ

41. $y = -7x$

- <http://www.youtube.com/watch?v=oG19cFGRFeA>
- <http://www.youtube.com/watch?v=Zj-9Zc9yKYU>

43. $y = (-3x/4) - 3$

- <http://www.youtube.com/watch?v=oG19cFGRFeA>
- <http://www.youtube.com/watch?v=Zj-9Zc9yKYU>

45. $y - 1 = -1(x - 3)$

- <http://www.youtube.com/watch?v=oG19cFGRFeA>
- <http://www.youtube.com/watch?v=Zj-9Zc9yKYU>

40. $y = 4x + 2$

- <http://www.youtube.com/watch?v=oG19cFGRFeA>
- <http://www.youtube.com/watch?v=Zj-9Zc9yKYU>

42. $y = -.2(x - 2)$

- <http://www.youtube.com/watch?v=oG19cFGRFeA>
- <http://www.youtube.com/watch?v=Zj-9Zc9yKYU>

44. $y - 4 = -2(x - 3)/3$

- <http://www.youtube.com/watch?v=oG19cFGRFeA>
- <http://www.youtube.com/watch?v=Zj-9Zc9yKYU>