**Algebra 1 Practice Final** (I will be choosing 30 of these!)

*(Chapters 7-9)*

**1.** Express the area of the triangle as a monomial.

**2.** Simplify $\frac{(3 y^{-4}n^{-6} )^{-2} }{( y^{2}n^{-3} )^{4}}$

**3.** Solve $5^{x - 2}$ = 125.

**4.** Solve (7.5 × $10^{-5}$)(3.2 × $10^{7}$). Write your answer in both standard and scientific notation.

**5.** The population of Las Vegas, Nevada has been increasing at an annual rate of 5.0%. If the population of Las Vegas was 386,575 in 1998, predict its population in 2016.

**6.** A new motor home costs $75,000. It is expected to depreciate 7% each year. Find the value of the motor home in 5 years.

**7.** Write an equation for the *n*th term of the geometric sequence

 –4, 8, –16, 32, … .

**8.** Find (3$c^{2}$ – 8*c* + 5) – ($c^{2}$ – 8*c* – 6).

**9.** Solve *x*(*x* + 3) – 2 = 2 + *x*(*x* + 1).

**Find each product.**

**10.** (*x* – 2)(*x* + 9)

**11.** (3*x* + 2)(4$x^{2}$ – 2*x* – 7).

**12.** $(4a^{2}+b)^{2}$

**13.** (3*y* + 4*z*)(3*y* – 4*z*)

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**2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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**8. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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**13. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Algebra 1 Practice Final** *(continued)*

**Factor each polynomial.**

**14.** 12$x^{2}$*z* – 24$x^{4}$*z* + 16$x^{2}z^{3}$

**15.** $m^{2}$ + 12*m* – 28

**16.** 3$p^{2}$ – 20*p* + 12

**17.** 3$x^{5}$ – 75$x^{3}$

**18.** The area of a square is 25$x^{2}$ + 70*x* + 49 square inches. What is the length of the side of the square?

**Solve each equation.**

**19.** 10$y^{2}$ = –20*y*

**20.** $y^{2}$ = 13*y* – 42

**21.** $m^{2}$ + 64 = 16*m*

**22.** Write the equation of the axis of symmetry, and find the coordinates of the vertex of the graph of *y* = $x^{2}$ + 10*x* + 16. Then graph *y* = $x^{2}$ + 10*x* + 16.

**23.** Find the value of *c* that makes $x^{2}$ – 26*x* + *c* a perfect square trinomial.

**24.** State the value of the discriminant for 2$x^{2}$ + 5*x* + 2 = 0.

**25.** Solve 5$x^{2}$ + 13*x* = 6 by using the Quadratic Formula. Round to the nearest tenth if necessary.

*(Chapters 10–12)*

**Simplify each expression.**

**26.** $\sqrt{75y^{4}w^{3}}$

**27.** $\frac{3}{\sqrt{7} – 2}$

**28.** 3$\sqrt{12}$ + $\sqrt{27}$ – 2$\sqrt{20}$

**29.** ($\sqrt{5}$ – 4) ($\sqrt{5}$ + 4)

**14. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**15. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**16. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**17. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**18. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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**Algebra 1 Practice Final** SCORE \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**30.** Solve $\sqrt{3n + 1}$ + 3 = 7

**31.** Determine whether side measures 7, 5, and $\sqrt{84}$ form a right triangle.
Justify your answer.

**32.** Solve $\sqrt{5x+39}$ = *x* + 3.

**33.** Write an inverse variation equation that relates *x* and *y* if *y* = 0.8 when *x* = 1.8. Then find *y* when *x* = 4.8.

**34.** Simplify $\frac{a^{2} - 3a - 28 }{a^{2} + 3a - 4}$. State the excluded value(s) of *x*.

**Find each sum, difference, product or quotient.**

**35.** $\frac{y^{2} + 4y + 4}{y}$· $\frac{9y}{y^{2} - 4}$.

**36.** $\frac{n^{2} + 3n - 10}{n^{2} + 6n + 8}$ ÷ $\frac{n - 2}{n^{2} + 2n}$.

**37.** $\frac{2r - 3 }{r - 5}$ + $\frac{6r + 7 }{r - 5}$

**38.** $\frac{8 }{(a - b)^{2}}$ – $\frac{3b}{a^{2} - b^{2}}$

**39.** Solve $\frac{x - 1 }{x - 2}$ – $\frac{7 }{x + 3}$ = $\frac{5 }{x^{2} + x - 6}$. State any extraneous solutions.

**40.** Simplify $\frac{\frac{r^{2} + 2r - 3}{r}}{\frac{r^{2} + 3r}{r^{2} - r}}$.

**30. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**31.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **32.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**33.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**36.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**37.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**38.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**39.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **40.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_