**Algebra 2 Practice Final 2017** SCORE \_\_\_\_\_\_\_\_\_\_\_\_\_\_

*(Chapters 5-6)*

**For Questions 1–2, simplify. Assume that no denominator equals 0.**

**1.**  – + 3 +

**2.**

**3.** Use synthetic division to find (2 – 5 + 7*x* – 1) ÷ (*x* – 1).

**4.** Write the expression in radical form.

**5.** Solve + 4 ≤ 7.

**6.** Find *p*(–3) if *p*(*x*) = + 3.

**7.** Solve + 200 = 102.

**8.** Use synthetic substitution to find *f*(–3) for *f*(*x*) = 2 – 6 – 5*x* + 7.

**9.** One factor of *f*(*x*) = + – 22*x* – 40 is *x* + 4. Find the other factors.

**10.** List all of the possible rational zeros of *f*(*x*) = 3 – 7 + 2*x* – 15.

**11.** If *f*(*x*) = 3*x* and *g*(*x*) = 4*x* – 3, find *f* [*g*(5)] and *g*[ *f*(5)].

**12.** Find the inverse of *f*(*x*) = 7*x* – 2.

**13.** Simplify ÷ .

**14.** Simplify + .

**15.** Find the LCM of – 4*m* – 5 and + 8*m* + 7.

**1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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

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

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

**5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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

**9. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**10. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**11. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**12. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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

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

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

**Algebra 2 Practice Final 2017** *(continued)*

*(Chapters 7-9)*

**16.** Determine the equations of any vertical asymptotes and the value of *x* for any holes in the graph of *f*(*x*) = .

**17.** If *y* varies jointly as *x* and *z* and *y* = 100 when *x* = 10 and *z* = 5, find *y*when *x* = 12 and *z* = 6.

**18.** Solve = + .

**19.** Sketch the graph of *y* = 1.5. Then state the function’s domain and range.

**20.** Determine whether *y* = 1.5 represents exponential *growth* or *decay*.

**For Questions 21-25, solve each equation or inequality.   
Round to four decimal places if necessary.**

**21.** = 125 **22.**  = 2

**23.**  + = 1

**24.**  = 10.21 **25.** ≥ 21

**26.** Use ≈ 0.4307 and ≈ 0.6826 to approximate the value of .

**27.** Express in terms of common logarithms. Then approximate its value to four decimal places.

**28.** In a certain area, the sale price of new single-family homes has increased 4.1% per year since 1992. If a house was purchased in this area in 1992 for $75,000 and the growth continues, what will the sale price be in 2010? Use

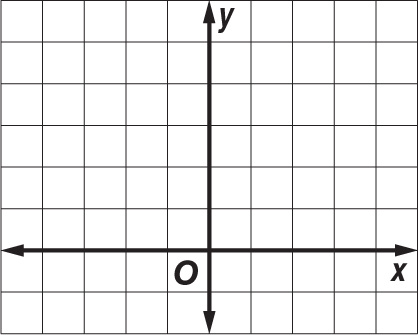
*y* = *a* and round to the nearest cent.

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

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

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

**19. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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**20. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**21. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**22. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**23. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**24. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**25. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**26. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**27. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**28. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**