**Chapter 8 Practice Tizzy Quest** SCORE \_\_\_\_\_\_\_\_\_\_\_

 **1.** For what value(s) of *x* is the expression $\frac{x^{2}- 9}{2x^{2}- 3x - 9}$ undefined?

**Simplify each expression.**

 **2.** $\frac{x^{3}}{x^{2} - 64}$÷ $\frac{x^{3}}{x + 8}$

 **3.** $\frac{3b^{2} + 3b - 6}{b^{2} - 6b + 5} ∙ \frac{b^{2} - 25}{6b + 12}$

 **4.** $\frac{\frac{3m^{2} - 75}{6m^{2} + 30m}}{\frac{4m - 20}{9m^{2} + 45m}}$

 **5.** $\frac{2}{x - 2}$– $\frac{8}{x^{2} - 4}$

 **6.** $\frac{5}{3m - 1}$– $\frac{2}{1 - 3m}$

**Find the LCM of each set of polynomials.**

 **7.** 4$m^{3}$*p*, 9*m*$p^{4}$, 18$m^{4}p^{2}$

 **8.** $n^{2}$ – 2*n* – 8, $n^{2}$ + 2*n* – 24

**For Questions 9 and 10, determine the equations of any vertical asymptotes and the values of *x* for any points of discontinuity in the graph of each rational function.**

 **9.** *f*(*x*) = $\frac{x + 1}{x - 3}$

**10.** *f*(*x*) = $\frac{x^{2} - 2x - 8}{x + 2}$

**11.** Graph *f*(*x*) = $\frac{x + 3}{\left(x – 2\right)(x+1)}$

**12.** If *y* varies jointly as *x* and *z* and *y* = 6 when *x* = 4 and *z* = 12, find *y* when

 *x* = 24 and *z* = 5.

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

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

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

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

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

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

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

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

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

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

**11.**

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

**Chapter 8 Tizzy Quest** *(continued)*

**13. PHOTOGRAPHS** A film-developing company noted that in a particular town the number of customers requesting online delivery of their vacation pictures varied directly with the number of households having high-speed Internet access. Currently, 5000 households in the town have high-speed Internet access and 80 customers request online delivery of their photographs. If this trend continues, how many customers should the film-developing company expect to request online delivery when 12,000 households have high-speed Internet access?

**14.** If *y* varies inversely as *x* and *y* = 25 when *x* = 6, find *y* when *x* = 150.

**15. GASES** The volume *V* of a gas varies inversely as its pressure *P*. If *V* = 80 cubic centimeters when *P* = 2000 millimeters of mercury, find *V* when *P* = 320 millimeters of mercury.

**For Questions 16 and 17, state whether each equation represents a *direct*, *joint*, *inverse*, or *combined* variation.**

**16.** $\frac{n}{10q}$= *r,* with dependent variable *r*

**17.** $\frac{m}{7n}$= 1, with dependent variable *n*

**For Questions 18 and 19, solve each equation or inequality.**

**18.** *x* + $\frac{2x}{x - 2}$= $\frac{3x - 2}{x - 2}$

**19.** 9 + $\frac{2}{m}$ > $\frac{47}{m}$

**20. PAINTING** Alice can paint a room in 8 hours. Her assistant can paint the same room in 12 hours. How long will it take if the two of them work together?

**Bonus** Solve $\frac{\frac{1}{x + 2} + \frac{1}{x - 3}}{\frac{1}{x +2} - \frac{1}{x - 3}}$ = 1.

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

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

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

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

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

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

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

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

**B: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**