Lorie Hughes Math 1010 Chapter 6 Test

Please DO NOT write on this test, put all your answers on the answer sheet provided.
You have worked so hard - take your time and I know you will do well. Good luck!!!

Find the numerical value of the rational expression for the given value of r. (2pts)

1) $\frac{8r + 6}{2r^2 + 7r + 5}$, $r = -4$

A) $-\frac{26}{55}$ B) $\frac{38}{9}$ C) $-\frac{38}{9}$ D) $-\frac{26}{9}$

Find any values of the variable for which the rational expression is undefined. Write answer with $\neq$. (2pts)

2) $\frac{x^2 - 81}{x^2 - 10x + 16}$

A) $x \neq 0$ B) $x \neq 8, x \neq 2$ C) $x \neq -8, x \neq -2$ D) $x \neq 9, x \neq -9$

Write the rational expression in lowest terms. (#3 is 2pts #4 is 3 pts)

3) $\frac{15x^3y^5}{5xy^2}$

A) $3xy^3$ B) $3x^2y^3$ C) $10x^2y^2$ D) $3x^2y^2$

4) $\frac{y^2 + 2y - 24}{y^2 - 2y - 48}$

A) $\frac{y - 4}{y - 8}$ B) $\frac{2y - 1}{-2y - 2}$ C) $\frac{2y - 24}{-2y - 48}$ D) $-\frac{y^2 + 2y - 24}{y^2 - 2y - 48}$

Multiply or divide. Write the answer in lowest terms. (#5 is 3 pts #6 is 4pts)

5) $\frac{3(p - 1)}{p} \div \frac{8(p - 1)}{4p^2}$

A) $\frac{2}{3p}$ B) $\frac{12p^3 - 12p^2}{8p^2 - 8p}$ C) $\frac{24p^2 + 48p + 24}{4p^3}$ D) $\frac{3p}{2}$

6) $\frac{2t^2 - 3t - 9}{3t^2 - 5t - 8} \cdot \frac{3t^2 + 10t - 48}{t^2 + 3t - 18}$

A) $\frac{2t + 3}{t - 1}$ B) $\frac{2t + 3}{t + 1}$ C) $\frac{(2t + 3)(t + 6)}{(t + 1)(t - 6)}$ D) $\frac{(2t + 3)(t + 3)}{(t + 6)(3t - 8)}$

Find the least common denominator for the fractions in the list. (2pts)

7) $\frac{1}{60x^5}, \frac{1}{18x^4}, \frac{12}{30x^2}$

A) $36x^2$ B) $60x^5$ C) $180x^5$ D) $90x^{20}$

Add or subtract. Write the answer in lowest terms. (#8 is 3pts, #'s 9 - 12 are worth 4pts)

8) $\frac{m^2 - 9m}{m - 6} + \frac{18}{m - 6}$

A) $\frac{m^2 - 9m + 18}{m - 6}$ B) $m - 6$ C) $m - 3$ D) $m + 3$

9) $\frac{2}{y^2 - 3y + 2} + \frac{5}{y^2 - 1}$

A) $\frac{7y - 8}{(y - 1)(y - 2)}$ B) $\frac{20y - 8}{(y - 1)(y + 1)(y - 2)}$

C) $\frac{8y - 7}{(y - 1)(y + 1)(y - 2)}$ D) $\frac{7y - 8}{(y - 1)(y + 1)(y - 2)}$

10) $\frac{2}{9x - 4} - \frac{8}{4 - 9x}$

A) $\frac{10}{9x - 4}$ B) $\frac{-10}{9x - 4}$ C) $\frac{6}{9x - 4}$ D) $\frac{-6}{9x - 4}$

11) $\frac{x}{x^2 - 16} - \frac{5}{x^2 + 5x + 4}$

A) $\frac{x^2 - 4x + 20}{(x - 4)(x + 4)(x + 1)}$ B) $\frac{x^2 + 4x + 20}{(x - 4)(x + 4)(x + 1)}$ C) $\frac{x^2 - 4}{(x - 4)(x + 4)(x + 1)}$ D) $\frac{x^2 - 4x + 20}{(x - 4)(x + 4)}$

12) $\frac{x}{x - 6} + \frac{12}{x + 6} - \frac{72}{x^2 - 36}$

A) $\frac{x + 24}{x + 6}$ B) $\frac{x - 24}{x - 6}$ C) 1 D) $\frac{x + 24}{x^2 - 36}$

Simplify the complex fraction. (#13 is 3pts #14 is 4pts)

13) $\frac{\frac{x^7}{7y^6}}{\frac{x^4}{y^4}}$

A) $\frac{x^3}{7y^2}$ B) $\frac{x^3}{7y^{10}}$ C) $\frac{x^3}{y^2}$ D) $\frac{x^{11}}{7y^{10}}$

14) $\frac{\frac{5}{3r - 1} - 5}{\frac{5}{3r - 1} + 5}$

A) $\frac{3r}{2 - 3r}$ B) $\frac{2 - 3r}{3r}$ C) $\frac{2 + 3r}{3r}$ D) $\frac{2 - r}{r}$

Solve. (4 pts)

15) $\frac{-5x}{2x + 2} = \frac{2x}{4x + 4} + \frac{2x - 1}{x + 1}$

A) $\left\{-\frac{1}{5}\right\}$ B) $\left\{\frac{1}{5}\right\}$ C) {4} D) $\left\{\frac{1}{20}\right\}$

Solve the problems. (#16 is 3 pts #'s 17 & 18 are 4 pts)

16) A machine can fill 779 boxes of cereal in 0.1 hour. How many boxes of cereal can it fill per hour?

A) 3895 boxes per hr B) 7790 boxes per hr C) 779 boxes per hr D) 78 boxes per hr

17) Chuck and Dana agree to meet in Chicago for the weekend. Chuck travels 252 mi in the same time that Dana travels 216 mi. If Chuck's rate of travel is 6 mph more than Dana's, and they travel the same length of time, at what speed does Chuck travel?

A) 42 mph B) 47 mph C) 36 mph D) 37 mph

18) One maid can clean the house in 5 hr. Another maid can do the job in 8 hr. How long will it take them to do the job working together?

A) $\frac{1}{13}$ hr B) $\frac{1}{40}$ hr C) $13\frac{1}{3}$ hr D) $3\frac{1}{13}$ hr