MAT 055 Practice Test Chapter 14
All test answers are to be in simplest form. A calculator may be used.
Cell phones, iPads, and other electronic devices with scanning or photo ability may NOT be used.

No notes, no books, no homework may be used while taking this test.

If possible, evaluate the expression at the given value of the variable.

1) $\dfrac{5x^2 + 8x}{3x}$, $x = -3$

2) $\dfrac{x}{x + 6}$, $x = -6$

Find any values of the variable that make the expression undefined.

3) $\dfrac{8}{r + 4}$

4) $\dfrac{m - 8}{4}$

5) $\dfrac{x^2 - 16}{x^2 + 17x + 72}$

Write the expression in lowest terms.

6) $\dfrac{4x + 2}{20x^2 + 18x + 4}$

7) $\dfrac{y^2 + 8y + 16}{y^2 + 11y + 28}$

8) $\dfrac{a^2 - 49}{a^2 + 10a + 21}$

9) $\dfrac{7 - m}{m - 7}$

10) $\dfrac{m^2 - s^2}{s - m}$

Simplify. Write your answer in lowest terms and leave the answer in factored form.

11) $\dfrac{4p - 4}{p} \cdot \dfrac{7p^2}{9p - 9}$

12) $\dfrac{k^2 + 15k + 56}{k^2 + 16k + 64} \cdot \dfrac{k^2 + 8k}{k^2 + 13k + 42}$

13) $\dfrac{z^2 - 9}{z} \div \dfrac{z + 3}{z - 8}$

14) $\dfrac{y^3 - 3y}{y^2 - 9} \div \dfrac{y^2 + 4y + 4}{y^2 + 5y + 6}$

15) $\dfrac{2m}{m - 6} - \dfrac{12}{m - 6}$

16) $\dfrac{5x}{x + 4} + \dfrac{7x - 8}{x + 4} - \dfrac{4x}{x + 4}$

17) $\dfrac{12}{x} + \dfrac{7}{4x}$

18) $\dfrac{8}{(x + 5)^2} + \dfrac{6}{x + 5}$

19) $\dfrac{2}{15x} - \dfrac{4}{21x^2}$

20) $\dfrac{4x}{x^2 - 5x + 6} - \dfrac{16}{x^2 - 6x + 8}$

Simplify the complex fraction.

Solve the equation.

21) $\dfrac{\dfrac{x^8}{7y^7}}{\dfrac{x^2}{y^4}}$

26) $\dfrac{x}{4} = \dfrac{7}{8}$

22) $\dfrac{\dfrac{x}{9}}{\dfrac{8}{x+3}}$

27) $\dfrac{x}{4} = \dfrac{7x}{8}$

28) $\dfrac{x+1}{2} = \dfrac{x+2}{3}$

23) $\dfrac{\dfrac{1}{k+2}}{\dfrac{5}{k^2-4}}$

29) $\dfrac{5-x}{x} - \dfrac{7}{x} = -\dfrac{3}{4}$

30) $\dfrac{4}{x-4} + \dfrac{1}{2x-8} = \dfrac{9}{2}$

24) $\dfrac{\dfrac{2}{x} + \dfrac{3}{y}}{\dfrac{3}{x} - \dfrac{2}{y}}$

31) $\dfrac{1}{x-6} + \dfrac{8}{x} = \dfrac{-48}{x^2-6x}$

32) $\dfrac{x}{2x+2} = \dfrac{-2x}{4x+4} + \dfrac{2x-3}{x+1}$

25) $\dfrac{\dfrac{4}{x^2-16} + \dfrac{1}{x-4}}{\dfrac{3}{x^2-16} + \dfrac{5}{x+4}}$

Solve.

33) Martha can rake the leaves in her yard in 4 hours. Her younger brother can do the job in 6 hours. How long will it take them to do the job if they work together?

34) An experienced accountant can balance the books twice as fast as a new accountant. Working together it takes the accountants 6 hours. How long would it take the experienced accountant working alone?

35) A boat goes 180 miles downstream in the same time it can go 150 miles upstream. The speed of the current is 8 miles per hour. Find the speed of the boat in still water.