

College Algebra – Rational Expressions

1. For any positive number m , the expression $\frac{2m^2 + 7m + 3}{m + 3}$ is equivalent to:

- F. $2m + 1$
- G. $2m + 7$
- H. $2m + 8$
- J. $2(m + 7)$
- K. $2m^2 + 7$

2. Which of the following expressions is equivalent to $\frac{7m + 70}{7}$?

- A. $70m$
- B. $11m$
- C. $7m + 10$
- D. $m + 70$
- E. $m + 10$

3. For $6x \neq 5y$, $\frac{24x^2 - 2xy - 15y^2}{6x - 5y} = ?$

- A. $3x - 4y$
- B. $4x - 3y$
- C. $3x + 4y$
- D. $4x + 3y$
- E. $6x - 5y$

4. For all x in the domain of the function $\frac{x+1}{x^3-x}$, this function is equivalent to:

F. $\frac{1}{x^2} - \frac{1}{x^3}$

G. $\frac{1}{x^3} - \frac{1}{x}$

H. $\frac{1}{x^2-1}$

J. $\frac{1}{x^2-x}$

K. $\frac{1}{x^3}$

5. For all $x > 3$, $\frac{3x-x^2}{x^2+3x-18} = ?$

A. $\frac{-x}{x+6}$

B. $\frac{x}{x-6}$

C. $\frac{1}{x+6}$

D. $-\frac{1}{18}$

E. $\frac{1}{18}$

6. For which nonnegative value of x is the expression $\frac{1}{9-x^2}$ undefined?

F. 81

G. 18

H. 9

J. 3

K. 0

7.

If b is any even integer, which of the following is a

more simplified way to express $\left[\frac{b+3}{b^2-9} \div \frac{1}{b-3} \right]$?

F. 1

G. 2

H. $\frac{1}{b^2+9}$

J. $\frac{2}{(b-3)^2}$

K. $\frac{1}{b^2-6b+9}$

8.

What is the sum of $\frac{2a}{3}$ and $\frac{4a}{5}$?

A. $\frac{6a}{8}$

B. $\frac{8a}{15}$

C. $\frac{14a}{15}$

D. $\frac{22a}{15}$

E. $\frac{15a}{22}$

9.

$\frac{3p}{5} + \frac{3q}{2}$ is equivalent to:

F. $\frac{9pq}{10}$

G. $\frac{6p+15q}{10}$

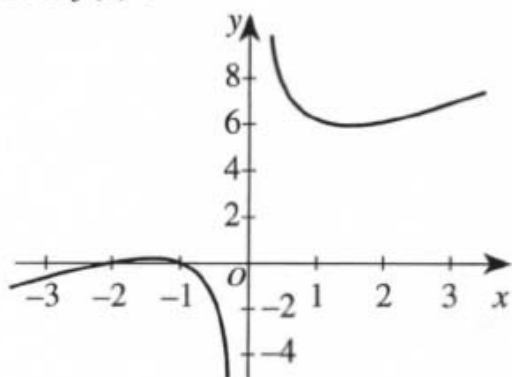
H. $\frac{6p+3q}{2}$

J. $\frac{3p+15q}{5}$

K. $\frac{3p+3q}{7}$

10.

The graph of the function $f(x) = \frac{x^2 + 3x + 2}{x}$ is shown in the standard (x,y) coordinate plane below. Which of the following, if any, is a list of each of the *vertical* asymptotes of $f(x)$?



- F. $x = 0$
- G. $x = -1$ and $x = -2$
- H. $y = x + 3$
- J. $y = 3x + 2$
- K. This function has no vertical asymptote.

11.

If $\frac{A}{30} + \frac{B}{105} = \frac{7A+2B}{x}$ and A , B , and x are integers greater than 1, then what must x equal?

- A. 9
- B. 135
- C. 210
- D. 630
- E. 3,150

12.

The ratio of 7 more than n to 5 less than n is 3 to 4. Which of the following equations could be solved to find the value of n ?

- F. $\frac{n-5}{n+7} = \frac{3}{4}$
- G. $\frac{n+5}{n-7} = \frac{3}{4}$
- H. $\frac{n+5}{n+7} = \frac{3}{4}$
- J. $\frac{n-7}{n+5} = \frac{3}{4}$
- K. $\frac{n+7}{n-5} = \frac{3}{4}$