1.

Which of the following is equivalent to $\frac{x^2+3x+2}{x+3}$?

A) $3x$

B) $x+2$

C) $x+\frac{2x}{x+3}$

D) $x+\frac{2}{x+3}$

2.

Which of the following expressions is equivalent to

$\frac{x^2+7x+12}{x^2+8x+15}$ for $x>0$?

A) $\frac{1}{x+3}$

B) $\frac{x+4}{x+3}$

C) $\frac{x+4}{x+5}$

D) $\frac{7x+12}{8x+15}$

3.

Which of the following is equivalent to $\frac{x^2 + 5x + 6}{x + 5}$?

A) $x + 1$

B) $x + 6$

C) $x + \frac{6}{x + 5}$

D) $x + \frac{6x}{x + 5}$

4.

$$\frac{x^2 + x}{x + 3}$$

The expression above can be rewritten in the form $A + \frac{6}{x + 3}$, where A is a polynomial. Which of the following represents A ?

A) $x - 2$

B) $x + 2$

C) $x^2 + x$

D) $x^2 + x - 6$

5.

Which of the following is equivalent to $\frac{x^2-2}{x-2}$?

A) $x+2$

B) $x+4$

C) $x+2+\frac{2}{x-2}$

D) $x+2+\frac{2}{x^2-2}$

6.

Which of the following expressions is a factor of $2x^2-7x-4$?

I. $x-4$

II. $2x-1$

A) I only

B) II only

C) I and II

D) Neither I nor II

7.

$$\frac{5g+1}{g+2}-1$$

Which of the following is equivalent to the given expression if $g > 0$?

A) $\frac{5g}{g+1}$

B) $\frac{5g}{g+2}$

C) $\frac{4g-1}{g+2}$

D) $\frac{4g+3}{g+2}$

8.

$$\frac{x^2(x-2)-4(x-2)}{x^2-4x+4}$$

If $x>2$, which of the following expressions is equivalent to the given expression?

A) $x+2$

B) $(x+2)(x-2)$

C) $(x-2)^2$

D) $\frac{1}{(x-2)}$

9.

$$\frac{x-3}{x^2-3^2}$$

Which of the following is equivalent to the expression above, where $x > 3$?

A) $\frac{1}{x+3}$

B) $\frac{1}{x-3}$

C) $\frac{x}{x^2}+\frac{3}{3^2}$

D) $\frac{x}{x^2}-\frac{3}{3^2}$

10.

If $x > 0$, which of the following is equivalent to $\frac{1}{x}+\frac{1}{2x}$?

A) $\frac{1}{x}$

B) $\frac{1}{2x}$

C) $\frac{3}{2x}$

D) $\frac{2}{3x}$

11.

$$\frac{x+2}{(x+2)^2}$$

Which of the following expressions is equivalent to the given expression, where $x \neq -2$?

A) $x+2$

B) $\frac{1}{x+2}$

C) x^2+2x+4

D) $\frac{1}{x^2+2x+4}$

12.

Which of the following is equivalent to

$\frac{1}{x^2+x} - \frac{1}{x+1}$, where $x > 0$?

A) $-\frac{x-1}{x^2+x}$

B) $-\frac{x+1}{x^2+x}$

C) $\frac{x-1}{x^2+x}$

D) $\frac{x+1}{x^2+x}$

13.

$$\frac{2x-6}{x^2-x-6}$$

Which of the following expressions is equivalent to the expression above for $x > 5$?

A) $\frac{1}{x+1}$

B) $\frac{1}{x-2}$

C) $\frac{2}{x-1}$

D) $\frac{2}{x+2}$

14.

$$\frac{x^2}{x-3}-\frac{x+15}{2x-6}$$

The expression above is equivalent to $ax + b$ for all values of x, where $x \neq 3$ and a and b are constants. What is the value of b ?

15.

$$\frac{x^2+17x+66}{x+6}$$

If the expression above is equivalent to an expression of the form $x + a$, where $x \neq -6$, what will be the value of a ?

18.

Which of the following expressions is equivalent to $\frac{6x+4}{2x}$, where $x \neq 0$?

A) $3+\frac{2}{x}$

B) $3x+2$

C) $3x+\frac{1}{2x}$

D) $3+2$

19.

$$\frac{2x+1}{x+3}-1$$

Which of the following is equivalent to the given expression?

A) $\frac{2x}{x+2}$

B) $\frac{2x}{x+3}$

C) $\frac{2x}{x+3}$

D) $\frac{x-2}{x+3}$

20.

$$\frac{x^2-2x-15}{x^2-9}\cdot\frac{x-3}{x};\ x\neq -3,0,3$$

Which of the following expressions is equivalent to the one above?

A) $\frac{x-5}{x}$

B) $\frac{x+5}{x}$

C) $\frac{x^2-5x}{x^2-6x+9}$

D) $\frac{x^2-2x-15}{x^2-3x}$

21.

$$\frac{5}{x-1}+\frac{8}{2(x-1)}$$

Which of the following expressions is equivalent to the one above, where $x \neq 1$?

A) $\frac{9}{x-1}$

B) $\frac{14}{x-1}$

C) $\frac{15}{2x-2}$

D) $\frac{21}{2x-2}$

22.

$$\frac{x^4 - 16}{x - 2}$$

Which of the following is equivalent to the expression above, where $x > 2$?

A) $x^3 - 8$

B) $x^3 + 8$

C) $(x - 2)(x^2 - 4)$

D) $(x + 2)(x^2 + 4)$

23.

$$\frac{2}{3x^2} - \frac{1}{6x^2}$$

Which of the following expressions is equivalent to the expression above for $x > 0$?

A) $-\frac{1}{2x^2}$

B) $-\frac{1}{3x^2}$

C) $\frac{1}{3x^2}$

D) $\frac{1}{2x^2}$

24.

$$\frac{3}{a+2}+\frac{7}{4a+8}$$

Which of the following is equivalent to the given expression?

A) $\frac{10}{a+2}$

B) $\frac{5}{2a+4}$

C) $\frac{19}{4a+8}$

D) $\frac{21}{5a+10}$

25.

$$\frac{2x}{4x-6}-\frac{x}{2x-3}=0$$

How many solutions does the equation above have?

A) None

B) One

C) Two

D) Infinitely many

26.

$$\frac{x^2-3x+2}{x-1}=0$$

What is the solution to the equation above?

27.

$$2x^3 + 11x^2 + 5x$$

Which of the following is NOT a factor of the polynomial above?

A) x

B) $x + 5$

C) $2x + 1$

D) $2x + 5$

28.

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

What is the solution to the equation above?

A) 0

B) 2

C) 3

D) 5

29.

$$\frac{4}{x-2} + \frac{2}{x} = \frac{8}{x^2 - 2x}$$

What value of x satisfies the equation above?

A) 0

B) 2

C) 14

D) No value of x satisfies the equation.

30.

$$\frac{x^2-1}{x-1}=-2$$

What are all the values of x that satisfy the equation above?

A) -3

B) 0

C) 1

D) -3 and -1