

Name _____

SHORT ANSWER. Write the answer to the question.

Determine the value(s) of the variable for which the expression is undefined.

1) $\frac{z^3}{4z^2 - 16}$

1) _____

MULTIPLE CHOICE. Choose the one alternative that best answers the question.

2) $\frac{m - 10}{m + 6}$

2) _____

A) -10

B) 10

C) 6

D) -6

Write the rational expression in lowest terms.

3) $\frac{10z^8}{25z^{11}}$

3) _____

A) $\frac{10}{25z^3}$

B) $\frac{2z^{19}}{5}$

C) $\frac{2z^3}{5}$

D) $\frac{2}{5z^3}$

4) $\frac{-15(2x - 3)(x + 4)}{3(x + 4)^2}$

4) _____

A) $\frac{5(2x - 3)}{x + 4}$

B) $\frac{-5(2x - 3)}{x + 4}$

C) $-5(2x - 3)$

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

$$5) \frac{y^2 + 3y - 40}{y^2 - 25}$$

5) _____

A) $\frac{y + 8}{y - 5}$

B) cannot simplify

C) $\frac{y + 8}{y + 5}$

D) $\frac{3y - 40}{25}$

$$6) \frac{c^2 - 36}{c^2 + 13c + 42}$$

6) _____

A) $\frac{c + 6}{c - 7}$

B) $\frac{c - 6}{c + 7}$

C) Prime

D) $-\frac{35}{13c + 43}$

Multiply and simplify.

$$7) \frac{5x^9}{7y^9} \cdot \frac{8y^4}{11x^6}$$

7) _____

A) $\frac{13x^3}{18y^5}$

B) $\frac{13x^{15}}{18y^{13}}$

C) $\frac{40x^9y^4}{77x^6y^9}$

D) $\frac{40x^3}{77y^5}$

$$8) \frac{h^2 - 4h + 4}{45h^3} \cdot \frac{5h}{3h - 6}$$

8) _____

A) $\frac{5h^3 - 20h^2 + 20h}{135h^4 - 270h^3}$

B) $-\frac{1}{27}$

C) $\frac{h - 2}{27h^2}$

D) $\frac{h^2 - 4h + 4}{9h^2(3h - 6)}$

Divide and simplify.

9) $\frac{x-3}{x+3} \div \frac{x^2-3x}{5x}$

9) _____

A) $\frac{x+3}{5x^2-3x}$

B) $\frac{5}{x+3}$

C) $\frac{5}{3x}$

D) $\frac{x^3-6x^2+9x}{5x^2+15x}$

10) $\frac{10x^9}{(8x-9)^6} \div \frac{5x^6}{(8x-9)^2}$

10) _____

A) $\frac{(8x-9)^4}{2x^3}$

B) $\frac{2x^3}{(8x-9)^4}$

C) $\frac{2x^9(8x-9)^2}{x^6(8x-9)^6}$

D) $\frac{(8x-9)^8}{50x^{15}}$

Identify the least common denominator.

11) $\frac{7}{20z^5}, \frac{6}{25z^7}$

11) _____

A) $500z^5$

B) $100z^7$

C) $100z^5$

D) $500z^7$

12) $\frac{7p}{p^2+3p-4}, \frac{-15p}{p^2-7p+6}$

12) _____

A) $(p-1)$

B) $(p+1)$

C) $(p+4)(p-1)^2(p-6)$

D) $(p+4)(p-1)(p-6)$

Rewrite the rational expression with the indicated denominator.

13) $\frac{4}{5t} = \frac{\quad}{15t^2z}$

13) _____

A) $3tz$

B) tz

C) $12tz$

D) $60t^2z$

$$14) \frac{4x}{x-3} = \frac{\quad}{(x-3)(x-2)} \quad 14) \underline{\quad}$$

A) $x^2 - 5x + 6$

B) $4x^2 - 20x + 24$

C) $4x^2 - 8x$

D) $4x^2 - 12x$

Add and simplify.

$$15) \frac{11c}{c+9} + \frac{99}{c+9} \quad 15) \underline{\quad}$$

A) $\frac{11}{2}$

B) $\frac{11(c+1)}{c(c+9)}$

C) $\frac{11c+99}{2(c+9)}$

D) 11

$$16) \frac{13x}{8x+9} + \frac{7}{8x+9} \quad 16) \underline{\quad}$$

A) $\frac{13x+7}{8x+9}$

B) $\frac{91x}{8x+9}$

C) $\frac{13x+7}{2(8x+9)}$

D) $\frac{20x}{8x+9}$

Subtract and simplify.

$$17) \frac{7}{4m} - \frac{1}{28m^4} \quad 17) \underline{\quad}$$

A) $\frac{3}{14m^4}$

B) $\frac{49m^3 - 1}{28m^4}$

C) $\frac{196m^4 - 4m}{112m^5}$

D) $\frac{6}{4m - 28m^4}$

Add and simplify.

$$18) \frac{6}{5x-40} + \frac{6x-1}{x^2-12x+32} \quad 18) \underline{\quad}$$

A) $\frac{36x^2 - 317x + 232}{5(x-8)^2(x-4)}$

B) $\frac{6x^2 - 25x + 34}{x-8}$

C) $\frac{6x+5}{x^2+7x-8}$

D) $\frac{36x-29}{5(x-8)(x-4)}$

$$19) \frac{2}{x+9} + \frac{3}{x-9} + \frac{5}{x^2-81}$$

19) _____

A) $\frac{5x+14}{(x-9)(x+9)}$

B) $\frac{2x+3}{(x-9)(x+9)}$

C) $\frac{81x+81}{x-9}$

D) $\frac{3x-5}{(x-9)(x+9)}$

Subtract and simplify.

$$20) \frac{29}{t-3} - \frac{6}{3-t}$$

20) _____

A) $\frac{23}{t^2-9}$

B) $\frac{23}{t-3}$

C) $\frac{-35t+69}{(t-3)(3-t)}$

D) $\frac{35}{t-3}$

Simplify completely.

$$21) \frac{\frac{56y^3}{3x}}{\frac{21y}{x^5}}$$

21) _____

A) $\frac{8y^4x^6}{9}$

B) $\frac{35y^2}{2x^4}$

C) $\frac{8x^4y^2}{9}$

D) $\frac{392y^4}{x^6}$

$$22) \frac{\frac{14x^8y^4}{9}}{\frac{10x^6y^8}{3}}$$

22) _____

A) $\frac{140x^{14}y^{12}}{27}$

B) $\frac{7x^2y^4}{135}$

C) $\frac{7x^2}{15y^4}$

D) $\frac{42x^8y^4}{90x^6y^8}$

$$23) \frac{\frac{3}{w-2} + \frac{4}{w+3}}{\frac{3}{w+3} - \frac{1}{w-2}}$$

23) _____

A) $\frac{7}{2}$

B) $\frac{7w+1}{2w-9}$

C) $\frac{35}{2(2w+1)}$

D) $\frac{35}{(w-2)(w+3)}$

Solve the equation.

$$24) \frac{9m}{18} + \frac{5}{9} = \frac{1}{27}$$

24) _____

A) $\left\{\frac{2}{15}\right\}$

B) $\left\{-\frac{28}{27}\right\}$

C) $\left\{-\frac{4}{9}\right\}$

D) \emptyset

$$25) \frac{3}{x} + \frac{3}{x-2} = \frac{3x-3}{x-2}$$

25) _____

A) $\left\{-\frac{5}{2}, \frac{1}{3}\right\}$

B) \emptyset

C) $\{2, 1\}$

D) $\{1\}$

$$26) \frac{2}{v-5} - \frac{1}{v+1} = \frac{10}{v^2 - 4v - 5}$$

26) _____

A) $\{-5, 1\}$

B) $\{3\}$

C) \emptyset

D) $\{-1, 5\}$

Solve the problem.

27) The recipe for a sheet cake calls for 7 cups of flour and 3 cups of sugar. Suppose you want to make as much cake batter as you can using all of the flour you have, which is 31 cups. How many cups of sugar would you need? Round to the nearest tenth of a cup.

27) _____

A) 13.3

B) 8.9

C) 22.1

D) 72.3

28) Write an equation and solve.

28) _____

With a current flowing at 9 mph, a boat can travel 27 miles upstream in the same amount of time it can travel 81 miles downstream. Find the speed of the boat in still water.

A) $\frac{9}{2}$ mph

B) 9 mph

C) 18 mph

D) 27 mph

Write a general variation equation using k as the constant of variation.

29) r varies inversely as the fourth power of s

29) _____

A) $r = \frac{\sqrt[4]{s}}{k}$

B) $r = \frac{k}{s^4}$

C) $r = \frac{k}{\sqrt[4]{s}}$

D) $r = \frac{s^4}{k}$

Solve the problem.

30) The cost, in dollars, of filling your gas tank is directly proportional to the amount purchased. If 14 gallons of gas costs \$16.80, how much would 17 gallons cost?

30) _____

A) \$19.80

B) \$21.80

C) \$11.67

D) \$20.40

31) The number of hours it takes to paint a house is inversely proportional to the number of people painting. If it takes 3 workers 17.0 hours to paint a certain house, how long would it take 5 workers? Round to one tenth of an hour.

31) _____

A) 10.2 hours

B) 15 hours

C) 51.0 hours

D) 19 hours

Answer Key

Testname: MATH-0362 TEST 2 REVIEW

1) $z = 2, z = -2$

2) D

3) D

4) B

5) C

6) B

7) D

8) C

9) B

10) B

11) B

12) D

13) C

14) C

15) D

16) A

17) B

18) D

19) A

20) D

21) C

22) C

23) B

24) B

25) D

26) B

27) A

28) C

29) B

30) D

31) A