

Math 105 Final Exam Review Answers

1.

A. $\frac{6x}{(x+2)(x-2)(3x+2)}$

B. $\frac{a+b}{a-b}$

C. $10\sqrt{2y+1}$

D. $8a^{2/3} + 4b^{4/5}$

E. $-3\sqrt{y} - 2\sqrt{y+1}$

F. $-\frac{61}{70}$

G. $-6\frac{2}{5}$

H. $\frac{x^2+2x+11}{(2-x)(2+x)}$

I. $12y^2\sqrt{2y} - 19x^3\sqrt{2x}$

J. $\frac{5}{18}$

K. $\frac{-x^2+3x+2}{x^2-4x-3}$

L. $\frac{a^2-b^2}{a^2+b^2}$

M. $7x^3 + 2x^2 - 10x - 5$

N. $\frac{6a^{12}-15b^{13}c^3}{10a^{10}b^{10}c^{10}}$

O. $\frac{-2a^3b^5d^9-3c}{a^2b^7cd^{12}}$

P. $\frac{4x^2-8x-4}{(x+1)(x-2)(x-1)}$

Q. $-19ay^2\sqrt{2a^2y} + 5ab^2\sqrt{a^3b^2}$

2.

A. $(f-g)(y) = 6 - 5y - \sqrt{y}$

B. a. $(f+g)(x) = 5x^3 - x^2 - 2x + 5$

C. a. $\left(\frac{f}{g}\right)(x) = \frac{3x-1}{2x^2+1}$

D. $(fg)(x) = 3x^3 - x^2 + 3x - 1$

E. $(fg)(-5) = -416$

F. $\left(\frac{f}{g}\right)(x) = \frac{3x-1}{x^2+1}$

G. $\left(\frac{f}{g}\right)(5) = \frac{14}{51}$

b. $(f+g)(0) = 5$

b. $\left(\frac{f}{g}\right)(4) = \frac{1}{3}$

3.

A. $-\frac{5}{22}$

B. $-\frac{52}{441}$

C. $-\frac{12}{7}$

D. 9.5

4.

A. $\frac{(x-3)(x^2-4x+16)}{(x-1)(3x-1)}$

B. -1

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

D. $\frac{(x-2)(x+3)(x-3)}{(x+2)(x-6)(x+1)}$

E. $-x^3$

8.

- A. $x = \pm \frac{5}{2}$
- B. $x = -\frac{3}{4}, \frac{7}{4}$
- C. $x = -\frac{9}{14}, \frac{13}{4}$
- D. $\left(-\frac{5}{2}, \frac{5}{2}\right)$

- E. $\left[-\frac{3}{2}, 3\right]$
- F. $\left(-\infty, -\frac{3}{2}\right] \cup \left[\frac{5}{2}, \infty\right)$
- G. $\left(-\infty, -1\right] \cup \left[\frac{5}{4}, \infty\right)$
- H. $\left(-\infty, -\frac{14}{11}\right] \cup \left[\frac{6}{11}, \infty\right)$

9.

$$y = \frac{C - Ax}{B}$$
$$q = \frac{p}{rt}$$
$$F = \frac{9}{5}T + 32$$

$$T = \frac{D}{R}$$
$$x = \frac{y - b}{m}$$
$$f = \frac{qp}{q - p}$$

10.

- A. $x = -15$
- B. $x = -1$
- C. $x = \frac{1}{6}$
- D. $x = 2$
- E. $x = \frac{31}{2}$
- F. $t = 11$
- G. $t = 6$

- H. $t = \frac{1}{3}$
- I. $x = 81$
- J. $x = \sqrt[3]{15}$
- K. $x = -1$
- L. $x = -\frac{11}{3} \pm \frac{\sqrt{5}}{3}$
- M. $x = -\frac{4}{11} + \frac{\sqrt[5]{2}}{11}$

11.

- A. $x = \frac{1}{3} \pm \frac{\sqrt{11}}{3}i$
- B. $x = \frac{3}{5} \pm \frac{2\sqrt{11}}{5}$
- C. $x = 1, 3$
- I. $x = \frac{1}{10} \pm \frac{\sqrt{79}}{10}i$
- J. $x = \frac{1}{5} \pm \frac{\sqrt{34}}{5}i$
- K. $x = \frac{1}{2} \pm \frac{\sqrt{5}}{2}$
- L. $x = 5 \pm \frac{10\sqrt{3}}{3}$
- M. $x = 4, \frac{7}{2}$
- N. $x = -\frac{7}{2} \pm \frac{\sqrt{103}}{2}$
- O. $x = -2 \pm 2i\sqrt{5}$
- P. $x = \frac{1}{4} \pm \frac{\sqrt{73}}{4}$

- Q. $x = -1 \pm \sqrt{2}$
- R. $x = \frac{23}{2} + \frac{\sqrt{29}}{2}$