PRE CALCULUS 11

RATIONAL EXPRESSIONS PRACT TEST

1. How many of the following rational expressions do *not* have any restrictions on the variable?

$$\frac{x^4-1}{9} \qquad \frac{x^2+3x+2}{x^3+1} \qquad \frac{x^2+1}{x^2} \qquad \frac{x^2-16}{x^4+125} \qquad \frac{x+5}{x^2-36}$$

a) 1 b) 2 c) 3 d) 4 e) 5

2. For what values of x is the following expression undefined?

$$\frac{x-7}{x+2}$$

a) -7 only b) -2 only c) -7 and 2 d) 7 and -2 e) 7 only

3. For what values of x is the following expression undefined?

$$\frac{5x-3y}{2x+7y}$$

a) $-3y$ and $7y$ b) $-\frac{3}{5}y$ and $\frac{7}{2}y$ c) $-\frac{7}{2}y$ only d) $3y$ only e) $\frac{3}{5}y$ only

4. For what values of x is the following expression undefined?

$$\frac{x^2-10x+24}{x^2+5x-36}$$

a) -4 and 9 b) -9 only c) 4 only d) 4 and -9 only e) -9, 4 and 6

5. Simplify: $\dfrac{9x^2-12x}{3x^2+6x}$

a) $\dfrac{3x-4}{x-2}$ b) $\dfrac{3x-4}{x+2}$ c) $3x-2$ d) $-\dfrac{1}{2}$ e) $\dfrac{3x+4}{x-2}$

6. Simplify: $\dfrac{15x^2-3xy}{y^2-25x^2}$

a) $-\dfrac{3x}{5x+y}$ b) $\dfrac{3x}{5x+y}$ c) $\dfrac{3x}{5x-y}$ d) $\dfrac{3}{5+y}$ e) $-\dfrac{3x}{5x-y}$

7. Simplify: $\dfrac{4x^2-25x+6}{6x^2-35x-6}$

a) $\dfrac{2}{3}$ b) $\dfrac{x+4}{x-6}$ c) $\dfrac{4x+1}{6x-1}$ d) $\dfrac{4x-1}{6x-1}$ e) $\dfrac{4x-1}{6x+1}$

8. Simplify: $\dfrac{x^2-8x+12}{6-x}$

a) $2-x$ b) $x-2$ c) $x+2$ d) $-x-2$ e) $x+3$

9. When simplified, $\dfrac{3x^2-5x-12}{x-3} = Ax+B$. What is the value of $A+B$?

a) -7 b) -1 c) 6 d) 7 e) 14

10. Simplify completely: $\dfrac{x+\dfrac{x}{9}}{x+\dfrac{x}{8}}$

a) $\frac{8}{9}$ b) $\frac{80}{81}$ c) $\frac{81}{80}$ d) $\frac{9}{8}$ e) $\frac{5}{4}$

11. $\dfrac{15a^6}{7b^4} \div \dfrac{3a^8}{28b^6} = ?$

a) $20a^2b^2$ b) $\dfrac{20b^2}{a^2}$ c) $\dfrac{a^2}{20b^2}$ d) $\dfrac{45a^{14}}{196b^{10}}$ e) $\dfrac{20a^2}{b^2}$

12. Simplify: $\dfrac{(-3x^2)^3(x-7)^2}{(3x)^2(7-x)}$

a) $-3x^4(x-7)$ b) $3x^3(x-7)$ c) $-3x^3(x-7)$ d) $3x^4(x-7)$ e) $9x^4(x-7)$

13. Simplify: $\dfrac{(x+y)^2}{x^2-y^2}$

a) $\dfrac{x+y}{x-y}$ b) $x-y$ c) 1 d) -1 e) $\dfrac{x-y}{x+y}$

14. Simplify: $\dfrac{3x}{4} + \dfrac{7x+1}{5}$

a) $\dfrac{43x+4}{20}$ b) $\dfrac{10x+1}{9}$ c) $\dfrac{43x+1}{20}$ d) $7x+4$ e) $\dfrac{43x+1}{5}$

15. Simplify: $\dfrac{3}{4x} - \dfrac{5}{3x}$

a) $\dfrac{-12}{11x}$ b) $\dfrac{-11}{12x}$ c) $\dfrac{-12x}{11}$ d) $\dfrac{-11x}{12}$ e) $\dfrac{-2}{x}$

16. Simplify: $\dfrac{6}{x-y} - \dfrac{3}{y-x}$

a) $-\dfrac{9}{x-y}$ b) $-\dfrac{3}{x-y}$ c) $\dfrac{9}{x-y}$ d) $\dfrac{3}{x-y}$ e) $\dfrac{9}{x^2-y^2}$

17. Simplify: $\dfrac{x^2-4x-12}{x^2-4} \cdot \dfrac{1}{x-6}$

18. Simplify: $\dfrac{2x^2-x-6}{2x^2+3x-2} \div \dfrac{x^2-9}{x^2-x-6} \times \dfrac{4x^2-4x+1}{2x^2-5x+2}$

19. Simplify: $\dfrac{a}{a-3} - \dfrac{6a}{a^2-9}$

20. Simplify: $\dfrac{3}{n^2+n-2} - \dfrac{2}{n^2+8n+12} + \dfrac{1}{n^2+5n-6}$

21. Simplify the following complex fraction:

$$\frac{1-\dfrac{4}{x^2}}{2+\dfrac{2}{x}-\dfrac{4}{x^2}}$$

22. BONUS Simplify: $x - \dfrac{1}{x+\dfrac{1}{x+\dfrac{1}{x}}}$

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Answer List

1. b	2. b	3. c
4. d	5. b	6. a
7. e	8. a	9. d
10. b	11. b	12. d
13. a	14. a	15. b
16. c	17. $\frac{1}{x-2}$	18. $\frac{2x+3}{x+3}$
19. $\frac{a}{a+3}$	20. $\frac{2n+22}{(n-1)(n+2)(n+6)}$	21. $\frac{x-2}{2x-2}$
22. $\frac{x^4+x^2-1}{x^3+2x}$		

Catalog List

1. AW1 GA 34	2. CM2 FC 2	3. CM2 FC 6
4. CM2 FC 8	5. CM2 FC 16	6. CM2 FC 20
7. CM2 FC 34	8. CM2 FC 38	9. CM2 FC 66
10. CM2 FC 72	11. CM2 FD 8	12. CM2 FD 10
13. CM2 FD 16	14. CM1 AD 4	15. CM1 AD 10
16. CM1 AD 20	17. CM1 AE 11	18. CM1 AE 69
19. CM1 AD 28	20. CM1 AD 52	21. CM1 AE 72
22. CM1 AE 96		