

Name:
Instructor:

Date:
Section:

Chapter 6 Test Form A

1. Find the domain of the rational expression.

$$f(x) = \frac{x-3}{x^2+3x-10}$$

1. _____

Write each rational expression in lowest terms.

2. $\frac{-36x^4y^6}{10x^6y^3}$

2. _____

3. $\frac{3x-21}{x^2-2x-35}$

3. _____

Perform the indicated operations. Write answers in lowest terms.

4. $\frac{x^2+6x+9}{12x} \cdot \frac{3x^2}{x^2-9}$

4. _____

5. $\frac{x^2+5x+4}{2x^2+4x-16} \div \frac{x^2-x-2}{3x^2-x-2}$

5. _____

6. $\frac{5x-15}{10x^2-40} \div \frac{x^2+x-12}{x^2+7x+10}$

6. _____

7. $\frac{x^2-2x-24}{x^2-36} \cdot \frac{3x^2-13x+4}{4x^2-6x-40} \div \frac{3x^2+11x-4}{4x^2-14x-60}$

7. _____

8. $\frac{x-6}{x+5} + \frac{3-x}{x+5}$

8. _____

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

9. _____

10. $\frac{3}{x-4} - \frac{2}{x+4} - \frac{24}{x^2-16}$

10. _____

11. $\frac{4}{x^2-3x-10} + \frac{x}{x^2-9x+20}$

11. _____

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Simplify each complex fraction.

12. $\frac{\frac{4}{x^5}}{\frac{12}{x^7}}$

12. _____

13. $\frac{3 - \frac{2}{x}}{x + \frac{5}{x}}$

13. _____

14. $\frac{2 + \frac{3}{x-5}}{4 - \frac{1}{x-5}}$

14. _____

Divide.

15. $\frac{8x^2y - 4x^2 + 6xy}{2x^2y}$

15. _____

16. $\frac{4x^3 + 6x^2 - 8x + 4}{2x - 1}$

16. _____

17. Use synthetic division to divide.
 $(3x^4 - 2x^3 - 6x^2 + 5x - 8)$ by $(x - 4)$

17. _____

18. If $P(x) = 4x^4 - 2x^3 - 3x + 11$, use the remainder theorem to find $P(-2)$.

18. _____

19. Solve for y . $x = \frac{4y + 6}{3}$

19. _____

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Solve each equation for x .

20. $\frac{2}{x} + \frac{1}{3} = \frac{4}{x}$ 20. _____

21. $\frac{3x-1}{5-8x} = -\frac{1}{3}$ 21. _____

22. $\frac{3}{x-2} + \frac{x}{x+2} = -\frac{8}{3}$ 22. _____

23. $\frac{x+5}{x^2+7x+10} = \frac{1}{2x+10} - \frac{1}{x+2}$ 23. _____

24. The speed of a boat in still water is 20 mph. If the boat travels 140 miles downstream in the same time that it takes to travel 92 miles upstream, find the speed of the current. 24. _____

25. Suppose that w is directly proportional to y and inversely proportional to v . If $w = 12$ when $v = 20$ and $y = 10$, find w when $v = 30$ and $y = 5$. 25. _____

Test 6 – A

1. $\{x \mid x \text{ is a real number and } x \neq -5, 2\}$

2. $-\frac{18y^3}{5x^2}$

3. $\frac{3}{x+5}$

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

5. $\frac{(3x+1)(x-1)}{2(x-2)^2}$

6. $\frac{x+5}{2(x-2)(x+4)}$

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

8. $-\frac{3}{x+5}$

9. $\frac{-3x-14}{(x-2)(x+2)(x-3)}$

10. $\frac{1}{x+4}$

11. $\frac{x^2+6x-16}{(x-5)(x+2)(x-4)}$

12. $\frac{x^2}{3}$

13. $\frac{3x-2}{x^2+5}$

14. $\frac{2x-7}{4x-21}$

15. $4 - \frac{2}{y} + \frac{3}{x}$

16. $2x^2 + 4x - 2 + \frac{2}{2x-1}$

17. $3x^3 + 10x^2 + 34x$

18. $141 + \frac{556}{x-4}$

19. 97

20. $y = \frac{3x-6}{4}$

21. 6

21. -2

22. $-\frac{14}{11}, 1$

23. -6

24. 4.22 mph

25. 4