

# Algebra 1 Packet 22

Name \_\_\_\_\_

Assigned Teacher \_\_\_\_\_

Date \_\_\_\_\_

Algebra 1

## Fraxons

Day	Homework (due next class unless otherwise stated)

- Reduce rational expressions
- Multiply and divide rational expressions
- Add and subtract rational expressions
  - Standards 2.0, 10.0, 12.0, 13.01

# Warm Ups

Circle  M  T  W  Th		
Circle  M  T  W  Th		
Circle  M  T  W  Th		

# Warm Ups

Circle  M  T  W  Th		
Circle  M  T  W  Th		
Circle  M  T  W  Th		

# Practice 11-1

## Simplifying Rational Expressions

Simplify each expression.

1.  $\frac{6x^4}{18x^2}$

\_\_\_\_\_

2.  $\frac{15a^2}{25a^4}$

\_\_\_\_\_

3.  $\frac{32h^3}{48h^2}$

\_\_\_\_\_

4.  $\frac{12n^4}{21n^6}$

\_\_\_\_\_

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

\_\_\_\_\_

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

\_\_\_\_\_

7.  $\frac{4t^2 - 2t}{2t}$

\_\_\_\_\_

8.  $\frac{a^3 - 2a^2}{2a^2 - 4a}$

\_\_\_\_\_

9.  $\frac{21x^2y}{14xy^2}$

\_\_\_\_\_

10.  $\frac{32x^3y^2}{24xy^4}$

\_\_\_\_\_

11.  $\frac{x^2 + 3x}{3x + 9}$

\_\_\_\_\_

12.  $\frac{x^2 - 5x}{5x - 25}$

\_\_\_\_\_

13.  $\frac{x^2 + 13x + 12}{x^2 - 144}$

\_\_\_\_\_

14.  $\frac{x^2 - 9}{x^3 - 3x^2}$

\_\_\_\_\_

15.  $\frac{x^3 + x^2}{x + 1}$

\_\_\_\_\_

16.  $\frac{3x - 2y}{2y - 3x}$

\_\_\_\_\_

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

\_\_\_\_\_

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

\_\_\_\_\_

19.  $\frac{2x^2 - 8}{x^2 - 3x + 2}$

\_\_\_\_\_

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

\_\_\_\_\_

21.  $\frac{3x + 3y}{x^2 + xy}$

\_\_\_\_\_

22.  $\frac{10 + 3x - x^2}{x^2 - 4x - 5}$

\_\_\_\_\_

23.  $\frac{9 - x^2}{x^2 + x - 12}$

\_\_\_\_\_

24.  $\frac{x^2 + 2x - 15}{x^2 - 7x + 12}$

\_\_\_\_\_

25.  $\frac{x^2 + 7x - 8}{x^2 + 6x - 7}$

\_\_\_\_\_

26.  $\frac{x^2 + 3x - 10}{25 - x^2}$

\_\_\_\_\_

All rights reserved.

© Pearson Education, Inc., publishing as Pearson Prentice Hall.

# Practice 11-2

## Multiplying and Dividing Rational Expressions

Multiply or divide.

1.  $\frac{5}{9} \cdot \frac{6}{15}$

\_\_\_\_\_

2.  $\frac{8}{3} \div \frac{16}{27}$

\_\_\_\_\_

3.  $\left(-\frac{3}{4}\right) \div \frac{16}{21}$

\_\_\_\_\_

4.  $\frac{2}{9} \div \left(-\frac{10}{3}\right)$

\_\_\_\_\_

5.  $\frac{18m}{4m^2} \div \frac{9m}{8}$

\_\_\_\_\_

6.  $\frac{8x}{12} \cdot \frac{4x}{6}$

\_\_\_\_\_

7.  $\frac{9}{15x} \cdot \frac{25x}{27}$

\_\_\_\_\_

8.  $\frac{12x^3}{25} \div \frac{16x}{5}$

\_\_\_\_\_

9.  $\frac{6x^3}{18x} \div \frac{9x^2}{10x^4}$

\_\_\_\_\_

10.  $\frac{4r^3}{10} \cdot \frac{25}{16r^2}$

\_\_\_\_\_

11.  $\frac{8r^2}{3} \div \frac{20n}{9}$

\_\_\_\_\_

12.  $\frac{4n^3}{11} \cdot \frac{33n}{36n^2}$

\_\_\_\_\_

13.  $\frac{24r^3}{35r^2} \div \frac{12r}{14r^3}$

\_\_\_\_\_

14.  $\frac{a^2 - 4}{3} \cdot \frac{9}{a + 2}$

\_\_\_\_\_

15.  $\frac{4b - 12}{5b^2} \cdot \frac{6b}{b - 3}$

\_\_\_\_\_

16.  $\frac{2b}{5} \cdot \frac{10}{b^2}$

\_\_\_\_\_

17.  $\frac{2b}{b + 3} \div \frac{b}{b + 3}$

\_\_\_\_\_

18.  $\frac{5y^3}{7} \cdot \frac{14y}{30y^2}$

\_\_\_\_\_

19.  $\frac{4p + 16}{5p} \div \frac{p + 4}{15p^3}$

\_\_\_\_\_

20.  $\frac{3(h + 2)}{h + 3} \div \frac{h + 2}{h + 3}$

\_\_\_\_\_

21.  $\frac{h^2 + 6h}{h + 3} \cdot \frac{4h + 12}{h + 6}$

\_\_\_\_\_

22.  $\frac{n^2 - 1}{n + 2} \cdot \frac{n^2 - 4}{n + 1}$

\_\_\_\_\_

23.  $\frac{x^2 - x}{x} \cdot \frac{3x - 6}{3x - 3}$

\_\_\_\_\_

24.  $\frac{5x - 10}{x + 2} \cdot \frac{3}{3x - 6}$

\_\_\_\_\_

25.  $\frac{x^2 - 16}{x - 4} \div \frac{3x + 12}{x}$

\_\_\_\_\_

26.  $\frac{x^2 - 1}{3x - 3} \div \frac{x + 1}{3}$

\_\_\_\_\_

27.  $\frac{x^2 - 2x - 24}{x^2 - 5x - 6} \cdot \frac{x^2 + 5x + 6}{x^2 + 6x + 8}$

\_\_\_\_\_

All rights reserved.

© Pearson Education, Inc., publishing as Pearson Prentice Hall.

# Practice 11-3

## Dividing Polynomials

Divide.

1.  $\frac{10x - 25}{5}$

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

3.  $(3x^2 - 6x) \div 3x$

4.  $(10x^2 - 6x) \div 2x$

5.  $(-8x^5 + 16x^4 - 24x^3 + 32x^2) \div 8x^2$

6.  $(15x^2 - 30x) \div 5x$

7.  $(x^2 - 14x + 49) \div (x - 7)$

8.  $(2x^2 - 13x + 21) \div (x - 3)$

9.  $(4x^2 - 16) \div (2x + 4)$

10.  $(x^2 + 4x - 12) \div (x - 2)$

11.  $(x^2 + 10x + 16) \div (x + 2)$

12.  $(12x^2 - 5x - 2) \div (3x - 2)$

13.  $(x^2 + 5x + 10) \div (x + 2)$

14.  $(x^2 - 8x - 9) \div (x - 3)$

15.  $(3x^2 - 2x - 13) \div (x - 2)$

16.  $(x^3 + 3x^2 + 5x + 3) \div (x + 1)$

17.  $(2x^2 + 11x - 5) \div (x + 6)$

18.  $(x^2 + 5x - 10) \div (x + 2)$

19.  $(8x + 3 + 4x^2) \div (2x - 1)$

20.  $(3x^2 + 11x - 4) \div (3x - 1)$

All rights reserved.

© Pearson Education, Inc., publishing as Pearson Prentice Hall.

# Practice 11-4

## Adding and Subtracting Rational Expressions

Add or subtract.

1.  $\frac{3x}{4} - \frac{x}{4}$

---

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

---

3.  $\frac{5x}{6} - \frac{2x}{3}$

---

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

---

5.  $\frac{3m}{4} + \frac{5m}{12}$

---

6.  $\frac{4x}{7} - \frac{3x}{14}$

---

7.  $\frac{6}{7t} - \frac{3}{7t}$

---

8.  $\frac{d}{3} + \frac{4d}{3}$

---

9.  $\frac{7}{2d} - \frac{3}{2d}$

---

10.  $\frac{3}{2d^2} + \frac{4}{3d}$

---

11.  $\frac{9}{m+1} - \frac{6}{m-1}$

---

12.  $\frac{3}{x} - \frac{7}{x}$

---

13.  $\frac{7a}{6} + \frac{a}{6}$

---

14.  $\frac{4}{k+3} - \frac{8}{k+3}$

---

15.  $\frac{3}{4z^2} + \frac{7}{4z^2}$

---

16.  $\frac{6}{x^2-1} + \frac{7}{x-1}$

---

17.  $\frac{2x}{x^2-1} - \frac{3}{x+1}$

---

18.  $\frac{3t}{8} + \frac{3t}{8}$

---

19.  $\frac{4}{3a^2} - \frac{1}{2a^3}$

---

20.  $\frac{4}{a+4} + \frac{6}{a+4}$

---

21.  $\frac{4}{x+3} + \frac{6}{x-2}$

---

22.  $\frac{6}{7t^3} - \frac{8}{3t}$

---

23.  $\frac{3}{2x+6} + \frac{4}{6x+18}$

---

24.  $\frac{5}{8a} - \frac{3}{8a}$

---

25.  $\frac{5}{r^2-4} + \frac{7}{r+2}$

---

26.  $\frac{6}{a^2-2} + \frac{9}{a^2-2}$

---

27.  $\frac{5x}{4} - \frac{x}{4}$

---

All rights reserved.

© Pearson Education, Inc., publishing as Pearson Prentice Hall.

# Practice 11-5

## Solving Rational Equations

Solve each equation. Check your solution. If there is no solution, write *no solution*.

1.  $\frac{1}{x} + \frac{1}{2x} = \frac{1}{6}$

\_\_\_\_\_

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

\_\_\_\_\_

3.  $\frac{1}{3s} = \frac{s}{2} - \frac{1}{6s}$

\_\_\_\_\_

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

\_\_\_\_\_

5.  $1 - \frac{3}{x} = \frac{4}{x^2}$

\_\_\_\_\_

6.  $\frac{7}{3(a-2)} - \frac{1}{a-2} = \frac{2}{3}$

\_\_\_\_\_

7.  $\frac{n}{n-4} = \frac{2n}{n+4}$

\_\_\_\_\_

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

\_\_\_\_\_

9.  $\frac{2}{r^2-r} - 1 = \frac{2}{r-1}$

\_\_\_\_\_

10.  $\frac{y}{y+3} = \frac{6}{y+9}$

\_\_\_\_\_

11.  $\frac{d}{3} + \frac{1}{2} = \frac{1}{3d}$

\_\_\_\_\_

12.  $\frac{2m}{m-5} = \frac{2m+16}{m+3}$

\_\_\_\_\_

13.  $\frac{1}{m-4} + \frac{1}{m+4} = \frac{8}{m^2-16}$

\_\_\_\_\_

14.  $\frac{5}{x-2} = \frac{5x+10}{x^2}$

\_\_\_\_\_

15.  $\frac{k^2}{k+3} = \frac{9}{k+3}$

\_\_\_\_\_

16.  $\frac{h-3}{h+6} = \frac{2h+3}{h+6}$

\_\_\_\_\_

17.  $\frac{h}{6} - \frac{3}{2h} = \frac{8}{3h}$

\_\_\_\_\_

18.  $4 - \frac{3}{y} = \frac{5}{y}$

\_\_\_\_\_

19.  $\frac{1}{b-3} = \frac{b}{4}$

\_\_\_\_\_

20.  $\frac{1}{t^2} - \frac{2}{t} = \frac{3}{t^2}$

\_\_\_\_\_

21.  $\frac{2}{3n} + \frac{3}{4} = \frac{2}{3}$

\_\_\_\_\_

All rights reserved.

© Pearson Education, Inc., publishing as Pearson Prentice Hall.