

Be sure to express all answers in simplest form.

(Last edited: FALL 2008)

The following problems are just a sampling of possible exam problems. Be sure to review all notes, homework, and quizzes. Other study aids can be found at the end of the chapter in the textbook and the sample exams on MathXL.

1) Simplify: $\frac{-35x^3yz}{-42xy^2z}$

2) Simplify: $\frac{v^3 - 4v}{2v^2 - 5v + 2}$

3) Simplify: $\frac{a^2 - ab + 2a - 2b}{a + 2}$

4) Simplify: $\frac{y^3 - 216}{y - 6}$

5) Simplify: $\frac{5 - m}{m - 5}$

6) Multiply: $\frac{2x^2 - 6x}{3x - 6} \cdot \frac{6x - 12}{4x^3 - 12x^2}$

7) Divide: $\frac{6ab^3}{9a^2b} \div \frac{12a^2}{4ab^2}$

8) Multiply: $\frac{3y^2 - 10y + 8}{3y^2 + 8y - 16} \cdot \frac{6y^2 - 8y}{y^2 - 16}$

9) Subtract: $\frac{3x - 4}{6x} - \frac{2x - 5}{4x}$

10) Subtract: $\frac{b}{a^2 - b^2} - \frac{a}{a^2 - b^2}$

11) Subtract: $\frac{7x}{x - 4} - 2$

12) Combine using Add and Subtract:

$$\frac{3}{2r^2 - 5rs - 3s^2} - \frac{5}{4r^2 - 13rs + 3s^2} + \frac{3}{8r^2 + 2rs - s^2}$$

13) Add: $\frac{3x - 4}{4x + 1} + \frac{3x + 6}{4x^2 + 9x + 2}$

14) Solve: $\frac{3x}{x - 3} - 2 = \frac{9}{x - 3}$

15) Solve:

$$\frac{2}{t^2 - t - 6} + \frac{t + 1}{t^2 + t - 12} = \frac{t}{t^2 + 6t + 8}$$

16) Solve: $n - \frac{5}{n} = 4$

17) Solve: $\frac{x - 2}{5} = \frac{1}{x + 2}$

18) Simplify: $\frac{\frac{1}{b} + \frac{1}{2}}{1 - \frac{4}{b^2}}$

19) Simplify: $\frac{\frac{4}{x - 4} + \frac{2}{x + 2}}{\frac{2}{x + 2} - \frac{4}{x - 4}}$

20) If m varies directly as p, and m = 49 when p = 7, find m when p is 3.

SOLVE THE FOLLOWING PROBLEMS. AN EQUATION IS REQUIRED FOR FULL CREDIT.

- 21) An express train and a car leave a town at 3 PM and head for a town 280 miles away. The rate of the express train is twice the rate of the car. The train arrives 4 hours ahead of the car. Find the rate of the train.
- 22) The speed of a stream is 5 mph. If a boat travels 42 miles downstream in the same time that it takes to travel 21 miles upstream, what is the speed of the boat in still water?
- 23) A loaded moving truck is traveling 35 mph faster than a freight train. In the time it takes the train to travel 90 miles, the truck travels 160 miles. Find the speed of the truck.
- 24) A student can type a 60-page term paper in 4 hours. With a friend's help, the paper can be typed in 3 hours. How long would it take the friend working alone to type the paper?
- 25) The gravitational attraction A between two masses varies inversely as the square of the distance between them. If the force of attraction is 4 lb when the masses are 3 ft apart, what is the attraction when the masses are 6 ft apart?
- 26) The distance D that a spring is stretched by a hanging object varies directly as the weight W of the object. If a 5-kg object stretches a spring 48 cm, find the distance when the weight is 9-kg. Round to the nearest whole centimeter, if necessary.

Answer Key

Testname: M117CHAP7_REVIEW

1) $\frac{5x^2}{6y}$

2) $\frac{v(v+2)}{(2v-1)}$

3) $a - b$

4) $y^2 + 6y + 36$

5) -1

6) $\frac{1}{x}$

7) $\frac{2b^4}{9a^2}$

8) $\frac{2y(3y-2)}{(y+4)(y+4)}$

9) $\frac{7}{12x}$

10) $\frac{-1}{(a+b)}$

11) $\frac{5x+8}{x-4}$

12) $\frac{5r-17s}{(2r+s)(r-3s)(4r-s)}$

13) $\frac{3x-1}{4x+1}$

14) \emptyset

15) $\left\{-\frac{5}{4}\right\}$

16) $\{5, -1\}$

17) $\{\pm 3\}$

18) $\frac{b}{2(b-2)}$

19) $\frac{3x}{-x-8}$

20) $m = 21$

21) car: 35 mph for 8 hours

train: 70 mph for 4 hours

22) 15 mph

23) 80 mph

24) 12 hours

25) 1 lb

26) 86 cm