

This self-test may be taken only after you have completed all of the exercises indicated on your course-content/pacing sheet.

0600 - Self Test 6

SELF-TEST REVIEW
FOR TEST 6: RATIONAL EXPRESSIONS AND APPLICATIONS

1. Find all the values for which the following expression is undefined.

a) $\frac{5}{3x}$ b) $\frac{7y}{y+6}$ c) $\frac{2x+5}{1-3x}$

2. Simplify the following rational expressions.

a) $\frac{4(x-5)}{20(2x+3)}$ b) $\frac{3f-7}{7-3f}$ c) $\frac{p-6}{p^2-36}$

3. Multiply and simplify.

a) $\frac{12k^2}{7} \cdot \frac{21}{8k^5}$ b) $\frac{t^2-t-6}{4t+8} \cdot \frac{t^2+4t+4}{t^2-9}$

4. Divide and simplify.

a) $\frac{x^2-4x}{5x^3} \div \frac{x^2-2x-8}{15}$ b) $\frac{2d-1}{3} \div \frac{2d^2+d-1}{6d+6}$

5. Rewrite each rational expression with the indicated denominator.

a) $\frac{2}{7y} = \frac{?}{56y^4}$ b) $\frac{4}{p(p+5)} = \frac{?}{5p(p+5)(2p-3)}$

6. Find the least common multiple of the following polynomials.

$12ab, 4b^3, 5a^2$

7. Find the least common multiple of the following polynomials.

$6y^3, 8(y+5), 2y(y+5)$

8. Add and simplify.

a) $\frac{5}{2p} + \frac{13}{2p}$ b) $\frac{5k+4}{k-6} + \frac{k-40}{k-6}$ c) $\frac{6}{3x} + \frac{2x-1}{x+3}$

9. Subtract and simplify.

a) $\frac{2y}{y+5} - \frac{y-1}{y+5}$ b) $\frac{8}{t} - \frac{3}{5}$ c) $\frac{3x^2-x}{x-2} - \frac{4x+2}{x-2}$

10. Solve.

a) $\frac{5}{x} = \frac{7}{x-4}$ b) $2 + \frac{6}{x} = x - 3$

11. Solve for the variable P : $\frac{AP}{T} = m$

12. Solve for the variable y : $\frac{2y}{k} - t = a$

(Answers on the other side.)

Answers:

1. a) $x = 0$ b) $y = -6$ c) $x = \frac{1}{3}$

2. a) $\frac{x-5}{5(2x+3)}$ b) -1 c) $\frac{1}{p+6}$

3. a) $\frac{9}{2k^3}$ b) $\frac{(t+2)(t+2)}{4(t+3)}$

4. a) $\frac{3}{x^2(x+2)}$ b) 2

5. a) $\frac{16y^3}{56y^4}$ b) $\frac{20(2p-3)}{5p(p+5)(2p-3)}$ or $\frac{40p-60}{5p(p+5)(2p-3)}$

6. $60a^2b^3$

7. $24y^3(y+5)$

8. a) $\frac{9}{p}$ b) 6 c) $\frac{2x^2+x+6}{x(x+3)}$

9. a) $\frac{y+1}{y+5}$ b) $\frac{40-3t}{5t}$ c) $3x+1$

10. a) $x = -10$ b) $x = 6, x = -1$

11. $P = \frac{mT}{A}$

12. $y = \frac{ka+kt}{2}$ OR $Y = \frac{k(a+t)}{2}$