

Math 60
Review for Exam 3

1. Factor completely: $8x^2(3x^2 + 7) + 12xy^2(3x^2 + 7) - 6xy(3x^2 + 7)$
2. Factor completely: $y^3 + 2y^2 - 4y - 8$
3. Factor completely: $2x^3 + 22x^2 + 48x$
4. Factor completely: $4z^3 + 10z^2 + 6z$
5. Factor completely: $25x^4 - 49y^4$
6. Factor completely: $9 - 9w^4$
7. Solve the following quadratic equation by factoring: $x^2 + 10x + 28 = 4$
8. Determine the value(s) of the variables for which $\frac{x-5}{x^2-7x+12}$ is undefined.
9. Reduce to lowest terms: $\frac{x^2 - x - 6}{x^2 - 4}$
10. Multiply: $\frac{6a^2 - 14a - 12}{6a + 4} \times \frac{a + 3}{2a^2 - 2a - 12}$
11. Divide: $\frac{2x^2 + 9x + 4}{x^2 + 7x + 12} \div \frac{2x^2 - x - 1}{(x + 3)^2}$
12. Find the LCM of u^2 , $u^2 - 4$, $u^2 - 5u - 14$.
13. Add: $\frac{w-1}{w+2} + \frac{w+4}{w^2+5w+6}$
14. Subtract: $\frac{2x+3}{x^2-7x+12} - \frac{2}{x-3}$

15. Simplify: $\frac{x - \frac{x}{y}}{1 + x}$

16. Solve for x : $\frac{3}{x+4} = \frac{4}{x-1}$

17. Solve for y : $\frac{2y}{y+2} = \frac{y}{y+3} - \frac{3}{y^2+5y+6}$

18. The length of a photograph is 1 cm less than twice the width. The area is 28 cm^2 . Find the dimensions of the photograph.

(a) Determine the number of the unknowns.

(b) Let x be one of your unknowns. Write the other unknown in terms of x .

(c) Translate the problem into mathematical **equation**.

(d) **Solve** the equation.

(e) Make sure you have answered the question asked. **State the answer in a complete sentence.**

19. One number is 3 times another number. The sum of their reciprocal is 4. Find the two numbers.

(a) Determine the number of the unknowns.

(b) Let x be one of your unknowns. Write the other unknown in terms of x .

(c) Translate the problem into mathematical **equation**.

(d) **Solve** the equation.

(e) Make sure you have answered the question asked. **State the answer in a complete sentence.**

20. Mr. Donaldson can paint a house by himself in 20 hours. Mr. Cronkite can paint the same house by himself in 30 hours. How long will it take them to paint the house if they work together?

(a) Determine the number of the unknowns.

(b) Let t be your unknown.

(c) Translate the problem into mathematical **equation**.

(d) **Solve** the equation.

(e) Make sure you have answered the question asked. **State the answer in a complete sentence.**