

1. Factor $x^5 + x^4$.

2. Factor $3x^2 + 3xy - 2x - 2y$.

3. Factor $x^2 + 16$.

4. Factor $16x^2 - 49$.

5. Factor $x^4 - 16$.

6. Factor $4x^3 + 8x^2 - 32x$.

7. Factor $x^2 + 14x + 49$.

8. Factor $3x^2 + 5x - 2$.

9. Factor $4x^2 - 3x - 10$.

10. Solve $3x^2 + 7x = 0$.

11. Express the phrase as a ratio in lowest terms: 15 minutes to 1 hour.

12. A school board determines that there should be 3 teachers for every 80 students. How many teachers are needed for an enrollment of 2640 students?

13. Solve $\frac{2x + 1}{16} = \frac{20}{64}$.

14. Simplify the rational expression $\frac{x^2 + 5x - 36}{3x^2 - 11x - 4}$.

15. Do the operation and simplify $\frac{7x + 28}{7x - 42} \cdot \frac{x - 6}{x^2 - 16}$.

16. Do the operation and simplify $\frac{9w^5}{30y} \div \frac{18w^2}{5y^3}$.

17. Do the operation and simplify $\frac{4x + 24}{2x} \div \frac{x^2 - 36}{x - 6}$.

18. Do the operation and simplify $\frac{6x + 5}{x + 3} - \frac{3x - 4}{x + 3}$.

19. Do the operation and simplify $\frac{x}{x + 2} - \frac{8}{x^2 - 4} + \frac{x}{2 - x}$.

20. Solve $\frac{2x + 3}{3} + \frac{3x - 4}{6} = \frac{x - 2}{2}$.