

Answers for the practice second exam.

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1. Multiply: $(x + 2)(x - 5)$.

Answer. $x^2 - 3x - 10$. □

2. Multiply: $(2x + 3y)(x - y)$.

Answer. $2x^2 + xy - 3y^2$. □

3. Multiply: $(x - 1)(x^2 + x + 1)$.

Answer. $x^3 - 1$. □

4. Multiply: $(x + 3)(x - 3)$

Answer. $x^2 - 9$ □

5. Divide $\frac{6x^5 - x^4 + 4x^2 + 2x + 2}{2x}$.

Answer. $3x^4 - \frac{x^3}{2} + 2x + 1 + \frac{1}{x}$. □

6. Divide $\frac{-4x^8y^7}{20x^3y^2}$.

Answer. $-\frac{x^5y^5}{2}$. □

7. Factor by grouping: $8x^2 + 4xy - 6x - 3y$.

Answer. $(2x + y)(4x - 3)$. □

8. Factor completely: $4x^2 - 9$.

Answer. $(2x + 3)(2x - 3)$. □

9. Factor completely $x^2 + 2x - 15$.

Answer. $(x + 5)(x - 3)$. □

10. Factor completely: $6y^2 + 5y - 4$.

Answer. $(3y + 4)(2y - 1)$. □

11. Factor completely: $x^3 - 4x^2 - 4x + 16$.

Answer. First by factoring by grouping we get

$$(x^2 - 4)(x - 4)$$

And then we can further factor using the “difference of squares” formula to get:

$$\boxed{(x + 2)(x - 2)(x - 4)}.$$

□

12. Solve and check: $3x - 4 = 14$.

Answer. $x = 6$.

□

13. Solve and check: $3x - 4 = 2x + 5$.

Answer. $x = 9$.

□

14. Solve and check: $2x - 3(4x - 8) = 2(5 + x) - 10$.

Answer. $x = 2$.

□