

Review Polynomials Part 1
 Multiplying polynomials, Factoring the difference of perfect squares and factoring the GCF

1) $(4x-3)(7x+2)$

$$28x^2 + 8x - 21x - 6$$

$$28x^2 - 13x - 6$$

2) $(3x-3)(4x^2+2x-5)$ 1x'

$$12x^3 + 6x^2 - 15x$$

$$-12x^2 - 6x + 15$$

$$12x^3 - 6x^2 - 21x + 15$$

Write each number in prime-factorization form.

3) 328 $\overline{2 \cdot 2 \cdot 2 \cdot 41}$

$$2 \cdot 164$$

$$2 \cdot 2 \cdot 82$$

$$2 \cdot 2 \cdot 2 \cdot 41$$

2, 3, 5, 7, 11, 13, 17, 19...

4) 484 $\overline{2 \cdot 2 \cdot 11 \cdot 11}$

$$2 \cdot 242$$

$$2 \cdot 2 \cdot 121$$

$$2 \cdot 2 \cdot 11 \cdot 11$$

2, 3, 5, 7, 11, 13, 17, 19, 19

State the GCF (greatest common factor) for each pair of numbers

5) 180, 252 36

6) 49, 98 49

Handwritten prime factorizations for 180 and 252 are shown, with the common factors 2, 2, 3, and 3 circled in red and underlined, leading to the GCF of 36.

Handwritten prime factorizations for 49 and 98 are shown, with the common factors 7 and 7 circled in red and underlined, leading to the GCF of 49.

Factor each polynomial completely. Difference perfect sq.

7) $x^2 - 9$ 8) $4y^2 - 25$ 9) $m^2 - 4n^2$

Handwritten solutions for each:

- 7) $(x+3)(x-3)$, $\sqrt{x^2} = x$, $\sqrt{9} = 3$
- 8) $(2y+5)(2y-5)$, $\sqrt{4y^2} = 2y$, $\sqrt{25} = 5$
- 9) $(m+2n)(m-2n)$, $\sqrt{m^2} = m$, $\sqrt{4n^2} = 2n$

General formulas for difference of squares:

$$a^2 - b^2 = (a+b)(a-b)$$

$$\sqrt{a^2} = a \quad \sqrt{b^2} = b$$

GCF
Factor. Write prime, if prime.

10) $3x^2 - 9x + 18$

Handwritten solution: $3(x^2 - 3x + 6)$

Handwritten work shows the terms $3x^2$, $-9x$, and 18 each divided by 3, with the 3s circled in red.

11) $8x^3y^2 + 4x^3$

Handwritten solution: $4x^3(2y^2 + 1)$

Handwritten work shows $8x^3y^2$ divided by $4x^3$ to get $2y^2$, and $4x^3$ divided by $4x^3$ to get 1.

12) $-48\underline{a^2b^2} - 56\underline{a^3b} - 56\underline{a^5b}$

$$8a^2b(-6b - 7a - 7a^3)$$

13) $\underline{3m^5n} - \underline{7mn^2} + \underline{18}$ ←

PRIME