

Algebra 2

Name Key

Factoring- Extra Practice Worksheet

Factor the following polynomials completely.

<p>1. $49x^2 - 4$</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> $(7x-2)(7x+2)$ </div> <p style="text-align: right;">DOTS</p>	<p>2. $3d^2 + 33d + 72$</p> $3(d^2 + 11d + 24)$ <p style="text-align: center;">M(24) A(11) 8 & 3</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> $3(d+8)(d+3)$ </div> <p style="text-align: right;">GCF EASY</p>
<p>3. $5a^2 - 2ab - 16b^2$</p> <p>M(-8b) A(-2)</p> <p style="text-align: center;">-10 & 8</p> $5a^2 - 10ab + 8ab - 16b^2$ $5a(a-2b) + 8b(a-2b)$ <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> $(5a+8b)(a-2b)$ </div> <p style="text-align: right;">Tough</p>	<p>4. $3x^3 + 8x^2 - 15x - 40$</p> $x^2(3x+8) - 5(3x+8)$ <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> $(x^2-5)(3x+8)$ </div> <p style="text-align: right;">Grouping</p>
<p>5. $4xy^2 - 15xy + 11x$</p> $x(4y^2 - 15y + 11)$ <p>M(4y) A(-11)</p> <p style="text-align: center;">-11 & -4</p> $4y^2 - 11y - 4y + 11$ $y(4y-11) - 1(4y-11)$ <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> $x(y-1)(4y-11)$ </div> <p style="text-align: right;">GCF Tough</p>	<p>6. $a^3 + 7a^2 + 4a + 28$</p> $a^2(a+7) + 4(a+7)$ <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> $(a^2+4)(a+7)$ </div> <p style="text-align: right;">Grouping</p>
<p>7. $x^4 - 8x^2 + 16$</p> <p>$a = x^2 \quad b = 4$</p> $(x^2 - 4)^2$ <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> $(x-2)^2(x+2)^2$ </div> <p style="text-align: right;">PST DOTS</p>	<p>8. $20y^3 - 60y^2 + 45y$</p> $5y(4y^2 - 12y + 9)$ <p>$a = 2y \quad b = 3$</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> $5y(2y-3)^2$ </div> <p style="text-align: right;">GCF PST</p>
<p>9. $2x^4 + 250x$</p> $2x(x^3 + 125)$ <p>$a = x \quad b = 5$</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> $2x(x+5)(x^2-5x+25)$ </div> <p style="text-align: right;">GCF SO2C</p>	<p>10. $50h^4 - 32h^2$</p> $2h^2(25h^2 - 16)$ <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> $2h^2(5h-4)(5h+4)$ </div> <p style="text-align: right;">GCF DOTS</p>

<p>11. $9x^2 + 21x - 8$ $M(-72) A(21)$ $-3 \nmid 24$ $9x^2 - 3x + 24x - 8$ $3x(3x-1) + 8(3x-1)$ $(3x+8)(3x-1)$</p> <p style="text-align: right;">Tough</p>	<p>12. $3n^3 - 21n^2 + 30n$ $3n(n^2 - 7n + 10)$ $M(10) A(-7)$ $-5 \nmid -2$ $3n(n-5)(n-2)$</p> <p style="text-align: right;">GCF Easy</p>
<p>13. $n^2 + 12n + 36$ $a=n \quad b=6$ $(n+6)^2$</p> <p style="text-align: right;">PST</p>	<p>14. $64n^3 - 8$ $8(8n^3 - 1)$ $a=2n \quad b=1$ $8(2n-1)(4n^2 + 2n + 1)$</p> <p style="text-align: right;">GCF Do2C</p>
<p>15. $5w^3 + 2w^2 - 5wx^2 - 2x^2$ $w^2(5w+2) - x^2(5w+2)$ $(w^2 - x^2)(5w+2)$ $(w-x)(w+x)(5w+2)$</p> <p style="text-align: right;">grouping dots</p>	<p>16. $2x^4 + 7x^3 - 15x^2$ $x^2(2x^2 + 7x - 15)$ $M(-30) A(7)$ $-3 \nmid 10$ $2x^2 - 3x + 10x - 15$ $x(2x-3) + 5(2x-3)$ $x^2(x+5)(2x-3)$</p> <p style="text-align: right;">GCF Tough</p>
<p>17. $p^2(64-p^2) - (64-p^2)$ $(64-p^2)(p^2-1)$ $(8+p)(8-p)(p-1)(p+1)$</p> <p style="text-align: right;">GCF dots</p>	<p>18. $8k^2 + 25k + 3$ $M(24) A(25)$ $24 \nmid 1$ $8k^2 + 24k + k + 3$ $8k(k+3) + 1(k+3)$ $(k+3)(8k+1)$</p> <p style="text-align: right;">Tough</p>
<p>19. $15m^2 - 65m + 50$ $5(3m^2 - 13m + 10)$ $M(30) A(-13)$ $-10 \nmid -3$ $3m^2 - 10m - 3m + 10$ $m(3m-10) - 1(3m-10)$ $5(m-1)(3m-10)$</p> <p style="text-align: right;">GCF Tough</p>	<p>20. $12x^3 - 21x^2 + 8xy - 14y$ $3x^2(4x-7) + 2y(4x-7)$ $(3x^2 + 2y)(4x-7)$</p> <p style="text-align: right;">grouping</p>