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| **Sort It Out** | **Algebraic Division** |

By carrying out algebraic division, sort each of these divisions according to their remainder.

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| **1** | $$\frac{x^{3}+6x^{2}+9x+5}{x+1}$$ | **2** | $$\frac{x^{3}+11x^{2}+36x+36}{x+2}$$ |
| **3** | $$\frac{x^{3}+5x^{2}-19}{x+3}$$ | **4** | $$\frac{2x^{3}-17x^{2}+39x-20}{x-5}$$ |
| **5** | $$\frac{2x^{3}-47x+17}{x+5}$$ | **6** | $$\frac{4x^{3}-8x^{2}-9x+19}{x-2}$$ |
| **7** | $$\frac{2x^{3}-x^{2}+23x+12}{2x+1}$$ | **8** | $$\frac{6x^{3}-13x^{2}+7x+3}{3x+1}$$ |
| **9** | $$\frac{51-45x+12x^{2}-x^{3}}{5-x}$$ | **10** | $$\frac{x^{4}-5x^{3}+8x^{2}-14x-9}{x-4}$$ |
| **11** | $$\frac{2x^{4}-23x^{2}+17x-6}{x-3}$$ | **12** | $$\frac{2x^{3}+ax^{2}+(3-a^{2})x+(3a+2)}{x+a}$$ |

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| --- | --- | --- | --- |
| **A** | There is no remainder | **B** | The remainder is $1$ |
|  |  |
| **C** | The remainder is $-1$ | **D** | The remainder is $2$ |
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