

Simplify the following polynomials by adding or subtracting:

$1. (8a - 4a^2) - (7a^3 - a)$ $= (8a - 4a^2) + (-7a^3 + a)$ $= 8a - 4a^2 - 7a^3 + a$ $= -7a^3 - 4a^2 + 8a + a$ $= -7a^3 - 4a^2 + 9a$	$2. (6 - 3a^2) + (2a^2 - 3a)$ $= 6 - 3a^2 + 2a^2 - 3a$ $= -1a^2 - 3a + 6$
$3. (x^2 - x) + (8x - 2x^2)$ $= x^2 - x + 8x - 2x^2$ $= x^2 - 2x^2 - x + 8x$ $= -x^2 + 7x$	$4. (2a^2 + 4a^3) - (3a^3 + 8)$ $= (2a^2 + 4a^3) + (-3a^3 - 8)$ $= 2a^2 + 4a^3 - 3a^3 - 8$ $= 4a^3 - 3a^3 + 2a^2 - 8$ $= a^3 + 2a^2 - 8$
$5. (5x^2 + 4) - (5 + 5x^3)$ $= (5x^2 + 4) + (-5 - 5x^3)$ $= 5x^2 + 4 - 5 - 5x^3$ $= -5x^3 + 5x^2 - 1$	$6. (8n^2 - 2n^3) + (6n^3 - 8n^2)$ $= 8n^2 - 2n^3 + 6n^3 - 8n^2$ $= -2n^3 + 6n^3 + 8n^2 - 8n^2$ $= 4n^3$
$7. (8b^3 + 8) - (6 - 7b^3)$ $= (8b^3 + 8) + (-6 + 7b^3)$ $= 8b^3 + 8 - 6 + 7b^3$ $= 15b^3 + 2$	$8. (4x^3 - 6) + (5x^3 + 3)$ $= 4x^3 - 6 + 5x^3 + 3$ $= 9x^3 - 3$
$9. (10p^4 + 11) - (11p^4 + 13 + 16p^2)$ $= (10p^4 + 11) + (-11p^4 - 13 - 16p^2)$ $= 10p^4 + 11 - 11p^4 - 13 - 16p^2$ $= 10p^4 - 11p^4 - 16p^2 + 11 - 13$ $= -p^4 - 16p^2 - 2$	$10. (20v^2 - 9v^3) - (7v^3 - 10v^4 - 14v^2)$ $= (20v^2 - 9v^3) + (-7v^3 + 10v^4 + 14v^2)$ $= \underline{20v^2} - 9v^3 - 7v^3 + 10v^4 + \underline{14v^2}$ $= 10v^4 - 9v^3 - 7v^3 + 20v^2 + 14v^2$ $= 10v^4 - 16v^3 + 34v^2$
$11. (10x^4 - 16) + (12 - 6x^3 + 11x^4)$ $= \underline{10x^4} - 16 + 12 - 6x^3 + \underline{11x^4}$ $= 10x^4 + 11x^4 - 6x^3 - 16 + 12$ $= 21x^4 - 6x^3 - 4$	$12. (14 + 12a^3) + (17a^4 + 15 - 5a^3)$ $= 14 + \underline{12a^3} + 17a^4 + 15 - \underline{5a^3}$ $= 17a^4 + 12a^3 - 5a^3 + 14 + 15$ $= 17a^4 + 7a^3 + 29$

<p>13. $(17v^2 - 8) + (17v^2 + 10 + v^3)$ $= \underline{17v^2} - 8 + \underline{17v^2} + 10 + \underline{v^3}$ $= v^3 + 17v^2 + 17v^2 - 8 + 10$ $= v^3 + 34v^2 + 2$</p>	<p>14. $(20n + 11n^4) - (15n + 16n^2 - 17n^4)$ $= (20n + 11n^4) + (-15n - 16n^2 + 17n^4)$ $= \underline{20n} + \underline{11n^4} - \underline{15n} - \underline{16n^2} + \underline{17n^4}$ $= 11n^4 + 17n^4 - 16n^2 + 20n - 15n$ $= 28n^4 - 16n^2 + 5n$</p>
<p>15. $(10k^4 + 17k^3) - (14k^3 - 2k + 9k^4)$ $= \underline{(10k^4 + 17k^3)} + \underline{(-14k^3 + 2k - 9k^4)}$ $= \underline{10k^4} + \underline{17k^3} - \underline{14k^3} + \underline{2k} - \underline{9k^4}$ $= 10k^4 - 9k^4 + 17k^3 - 14k^3 + 2k$ $= k^4 + 3k^3 + 2k$</p>	<p>16. $(9r + 6r^4) + (12r - 2r^4 - 17)$ $= 9r + 6r^4 + 12r - 2r^4 - 17$ $= 6r^4 - 2r^4 + 9r + 12r - 17$ $= 4r^4 + 21r - 17$</p>
<p>17. $(11n + 7n^5 + 5) - (7n - 11n^5 + 6n^3) - (4 + 4n^5)$ $= \underline{(11n + 7n^5 + 5)} + \underline{(-7n + 11n^5 - 6n^3)} + \underline{(-4 - 4n^5)}$ $= \underline{11n} + \underline{7n^5} + 5 - \underline{7n} + \underline{11n^5} - \underline{6n^3} - 4 - \underline{4n^5}$ $= \underline{7n^5} + \underline{11n^5} - \underline{4n^5} - \underline{6n^3} + \underline{11n} - \underline{7n} + 5 - 4$ $= 14n^5 - 6n^3 + 4n + 1$</p>	<p>18. $(9a^4 + 1 - 11a^2) - (a + 8a^2 + 2) - (6a^2 - 9)$ $= \underline{(9a^4 + 1 - 11a^2)} + \underline{(-a - 8a^2 - 2)} + \underline{(-6a^2 + 9)}$ $= 9a^4 + 1 - 11a^2 - a - 8a^2 - 2 - 6a^2 + 9$ $= 9a^4 - 11a^2 - 8a^2 - 6a^2 - a + 1 - 2 + 9$ $= 9a^4 - 25a^2 - a + 8$</p>
<p>19. $(6k^5 - 6k^3 - 6k) + (4k + 11k^4 - 11) + (k^2 - 12)$ $= 6k^5 - 6k^3 - 6k + 4k + 11k^4 - 11 + k^2 - 12$ $= 6k^5 + 11k^4 - 6k^3 + k^2 - 6k + 4k - 11 - 12$ $= 6k^5 + 11k^4 - 6k^3 + k^2 - 2k - 23$</p>	<p>20. $(12x^4 + 3x^5 + 3x^2) - (6x - 5x^2 + 4) + (5x^5 + 7x)$ $= \underline{(12x^4 + 3x^5 + 3x^2)} + \underline{(-6x + 5x^2 - 4)} + \underline{(5x^5 + 7x)}$ $= 3x^5 + 5x^5 + 12x^4 + 3x^2 + 5x^2 - 6x + 7x - 4$ $= 8x^5 + 12x^4 + 8x^2 + x - 4$</p>
<p>21. $(10v^2 - 1 - v^3) + (10v^5 - 5v^3 + 5) - (4v^3 - 11v^5)$ $= \underline{(10v^2 - 1 - v^3)} + \underline{(10v^5 - 5v^3 + 5)} + \underline{(-4v^3 + 11v^5)}$ $= 10v^2 - 1 - v^3 + 10v^5 - 5v^3 + 5 - 4v^3 + 11v^5$ $= 10v^5 + 11v^5 - v^3 - 5v^3 - 4v^3 + 10v^2 - 1 + 5$ $= 21v^5 - 10v^3 + 10v^2 + 4$</p>	<p>22. $(7x^2 - 4x^4 - 12) + (4x^5 - 7x^4 - 5x^2) + (4x^2 - 3x^4)$ $= 4x^5 - 4x^4 - 7x^4 - 3x^4 + 7x^2 - 5x^2 + 4x^2 - 12$ $= 4x^5 - 14x^4 + 6x^2 - 12$</p>
<p>23. $(10 + 9v^5 - 8v^2) + (4v^4 + 3v^5 + 10) - (6 - 7v^4)$ $= \underline{(10 + 9v^5 - 8v^2)} + \underline{(4v^4 + 3v^5 + 10)} + \underline{(-6 + 7v^4)}$ $= 10 + 9v^5 - 8v^2 + 4v^4 + 3v^5 + 10 - 6 + 7v^4$ $= 9v^5 + 3v^5 + 4v^4 + 7v^4 - 8v^2 + 10 + 10 - 6$ $= 12v^5 + 11v^4 - 8v^2 + 14$</p>	<p>24. $(8r - 7r^5 + 6r^3) + (10r^5 + r + 4r^3) + (2r + 12r^5)$ $= \underline{8r} - \underline{7r^5} + \underline{6r^3} + \underline{10r^5} + \underline{r} + \underline{4r^3} + \underline{2r} + \underline{12r^5}$ $= -7r^5 + 10r^5 + 12r^5 + 6r^3 + 4r^3 + 8r + r + 2r$ $= 15r^5 + 10r^3 + 11r$</p>