Substituting with Variables into Algebraic Expressions

We are given the following variables and their values below.
Use them to substitute into each of the algebraic expressions below:

a = 2	**b** = 3	**c** = -1	**d** = 0
e = -9	**f** = 5	**g** = -4	**h** = 1
j = 25	**k** = -5	**m** = -3	**n** = 60
p = 7	**q** = -2	**r** = 4	**t** = 6
v = 9	**w** = 10	**x** = -10	**y** = 11

1. man
2. $bc + fg + hd$
3. $3ab + 4d^2$
4. $n \div k$
5. $fg^2 - hj + bm^2$
6. $c^2 - den$
7. $f^3 + \sqrt{k^2}$
8. $x^3 + y^2 + w$
9. $5y - 7x + 14w$
10. $dh^2 - nt - xy^2$
11. $rpq + 3t^2r - mr$
12. $jk^2 - f^3$
13. $6v + 12c - mw$
14. $17b - nd + x^3$
15. $7p + 15q - 12g$

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Memo

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(1) man

= -3 × 2 × 60

= -6 × 60

= -360

(2) bc + fg + hd

= 3×(-1) + 5×(-4) + 1×0

= -3 – 20 + 0

= -23

(3) $3ab + 4d^2$

= 3×2×3 + 4×0²

= 18 + 0

= 18

(4) n ÷ k

= 60 ÷ (-5)

= -12

5. $fg^2 - hj + bm^2$

$= 5\times(-4)^2 - 1\times25 + 3\times(-3)^2$

$= 5 \times 16 - 25 + 3 \times 9$

$= 80 - 25 + 27$

$= 82$

6. $c^2 - den$

$= (-1)^2 - 0\times(-9)(60)$

$= 1 - 0$

$= 1$

7. $f^3 + \sqrt{k^2}$

$= 5^3 + \sqrt{(-5)^2}$

$= 125 + \sqrt{25}$

$= 125 + 5$

$= 130$

8. $x^3 + y^2 + w$

$= (-10)^3 + 11^2 + 10$

$= -1\,000 + 121 + 10$

$= -869$

9. $5y - 7x + 14w$

$= 5\times11 - 7\times(-10) + 14\times10$

$= 55 + 70 + 140$

$= 265$

10. $dh^2 - nt - xy^2$

$= 0\times1^2 - 60\times6 - (-10)\times11^2$

$= 0 - 360 + 10 \times 121$

$= -360 + 1\,210$

$= 850$

11. $rpq + 3t^2r - mr$

$= 4\times7\times(-2) + 3\times6^2\times4 - (-3)\times4$

$= 28\times(-2) + 3\times36\times4 + 3\times4$

$= -56 + 12\times36 + 12$

$= -56 + 432 + 12$

$= 388$

12. $jk^2 - f^3$

$= 25\times(-5)^2 - 5^3$

$= 25 \times 25 - 125$

$= 625 - 125$

$= 500$

(13) $6v + 12c - mw$

$= 6 \times 9 + 12 \times (-1) - (-3)(10)$

$= 54 - 12 + 30$

$= 42 + 30$

$= 72$

(14) $17b - nd + x^3$

$= 17 \times 3 - 60 \times 0 + (-10)^3$

$= 51 - 0 - 1\,000$

$= -949$

(15) $7p + 15q - 12g$

$= 7 \times 7 + 15 \times (-2) - 12 \times (-4)$

$= 49 - 30 + 48$

$= 67$