

ALGEBRA & THE NUMBER LAWS

absolutely marvellous

1) Find a simple method of simplifying each of the following

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|-------------------------------------|----------------------------|----------------------------|
| a) $459 + 39 + 61$ | d) $20 \times 47 \times 5$ | g) $875 + 346 + 125$ |
| b) $56 \times 2 \times 0 \times 31$ | e) $700 + 4675 + 300$ | h) $4 \times 67 \times 25$ |
| c) $4 \times 35 \times 25$ | f) $50 \times 23 \times 2$ | i) $197 + 346 + 3$ |

2) Simplify

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|-------------------|-------------------|----------------------------|----------------------------|
| a) $5y + 7y$ | g) $7t + 0$ | m) $5t + 3t - t$ | s) $(4y + 5y) \times 2$ |
| b) $k \times k$ | h) $6a \times 3b$ | n) $7y - 4y + 3y$ | t) $(6t + 4t) \div 2$ |
| c) $6k \times 4m$ | i) $4d \times 3d$ | o) $6y \times 3y \times 0$ | u) $5r + 6y + 3r - y$ |
| d) $3ab + 5ab$ | j) $9y \div 3$ | p) $4f + 5t + 6f$ | v) $7t - 4t + 5f$ |
| e) $7y \times 1$ | k) $6y \div y$ | q) $21fg \div 7g$ | w) $9k \times 5k \times 1$ |
| f) $6y + 4 + 8y$ | l) $8d \div 2d$ | r) $9y^2 \div y$ | x) $9 - 5e - 3$ |

3) Expand

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|-----------------|-----------------|-----------------|-----------------|
| a) $5(p + d)$ | f) $a(g + h)$ | k) $7(5d + 4g)$ | p) $5(y - 7)$ |
| b) $7(3e - 6)$ | g) $k(k + r)$ | l) $6b(4b + 1)$ | q) $6r(5r - 2)$ |
| c) $3(8k + 5r)$ | h) $7y(y + 5)$ | m) $8h(5r - h)$ | r) $d(5t + 3)$ |
| d) $4(5f - 6)$ | i) $6f(3f - 4)$ | n) $8(6f + 4)$ | s) $4(6f + 9)$ |
| e) $2(6h + 2)$ | j) $9(6r - 9)$ | o) $3m(7m + 2)$ | t) $7(7y + 8)$ |

I love algebra

This work is

FANTASTIC

4) Expand and simplify

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|-----------------------------|----------------------------|----------------------------|
| a) $5(5y + 7) + 4(7y + 2)$ | g) $6t + 7(5t + 4) - 12$ | n) $5(7t + 9) + 7(1 - 5t)$ |
| b) $8(5f + 9) + 2(7f - 3)$ | h) $9(9k + 7y) + 19k$ | o) $6(8h + 3) - 48h - 18$ |
| c) $3(6g + 7) + 8(5g + 1)$ | j) $2(6j + 9) + 7(2y + 6)$ | p) $8(5r + 3) + 6(r - 4)$ |
| d) $5(4k + 5f) + 6(k + 2f)$ | k) $4(6 + 5t) + 8(2t + 3)$ | q) $3(6d + 9) + 7(d - 2)$ |
| e) $7k + 6(3k + 7) + 9$ | l) $5(y + k) + 8(5y - 1)$ | r) $6(7 + 9y) - 50y$ |
| f) $5(5r + 8) + 4(4r + 7y)$ | m) $3(7y + 8) + 2y - 24$ | s) $8(7y + 5) + 3(7y - 1)$ |

5) Simplify

WONDERFUL

wonderful

wonderful

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|-------------------|-------------------|---------------------------|--------------------|
| a) $6y + 5y$ | i) $8p - p - p$ | q) $a \times a$ | y) $7y \times 4y$ |
| b) $5t \times 7$ | j) $9n \times 1$ | r) $12y \div 2y$ | z) $9 + 6f - 3$ |
| c) $4g + 7g - g$ | k) $6k - 6k$ | s) $7 + 9 + 5f$ | A) $7t + 0$ |
| d) $6h - h$ | l) $12w \div 3$ | t) $5y \times 0 \times 4$ | B) $15bc \div 5b$ |
| e) $8k^2 \div k$ | m) $6t \times 4t$ | u) $6y + 7y - 4y$ | C) $5y + y^3$ |
| f) $6a + 7m + 3m$ | n) $6f + 7y$ | v) $7t - 3t$ | D) $9abc \div 3bc$ |
| g) $7f + f - 3f$ | o) $6ab + 5ba$ | w) $8cd - cd$ | E) $8y \times 3y$ |
| h) $8d \times 7d$ | p) $6r + 7 + 2r$ | x) $8k \div 8k$ | F) $3e + 6t - e$ |

6) Factorise

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|--------------|--------------|---------------|--------------|--------------|
| a) $7y + 14$ | c) $8r + 6$ | e) $9k + 6$ | g) $7y + 56$ | i) $8h - 8$ |
| b) $6p - 9$ | d) $ay + ap$ | f) $25y - 10$ | h) $12d - 4$ | j) $fd + 3d$ |