

# Further Adding and Subtracting Pronumerals

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Collect like terms and simplify.

Example

$$bx + b + 5 + 2xb + 3b + 7$$

$$= 3xb + 4b + 12$$

1  $3a + 5t + 3 - a + 6 + 4t$

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2  $12d + 2a + 16 - 5d - 7 + 3a$

---

3  $4ux + 3xa - 3xu + 2ax$

---

4  $5 + 5m + 21 - 4m + 3ma$

---

5  $12kd - 5dk - 5dk - 8 - kd$

---

6  $5 + a + b + 6 + 2ab + 3b$

---

7  $5tu + 17 + 12ut - 12t - 12$

---

8  $20a - 20 - a + 5ta + 11at$

---

9  $30ue + 15e - 5e - u$

---

10  $at + ta + at + ta + a - 4t$

---

11  $17 + 20as - 3 - 15sa - 3as$

---

Collect like terms, this time using powers (<sup>2</sup>)

Example

$$50 + a^2 + 3a + 17 - 2a + 3a^2$$

$$= 4a^2 - a + 67$$

12  $17 + 2m^2 - m + m^2 + 14$

---

13  $7h^2 + 3h - 3h^2 + 4 - 4h^2$

---

14  $20k^2 + 14 - 12k - 8k^2 - 7$

---

15  $9r^2 + 5tr + 7 - 3r^2 + 16 - 2rt$

---

16  $13e + 5e^2 - 8e - 2e^2 - 5 - 4e$

---

17  $20cw + 37 - c^2 - 18wc - 19$

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These are harder, note which term has the <sup>2</sup>

18  $9fg^2 + 3f^2g + 3g^2f$

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19  $10yt^2 + 3y^2t + 5yt^2$

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20  $5a^2 + 3a^2t - 3a^2 - 2ta^2$

---

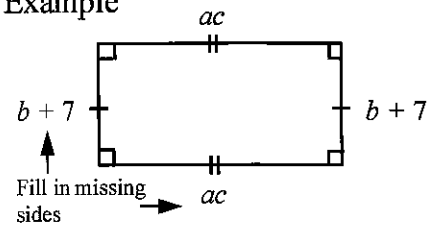
21  $y^2 + 2xy^2 + 3y^2 - y^2x^2$

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Use your algebra skills to give an expression for the perimeter of the shapes below. Collect like terms.



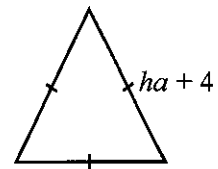
Example



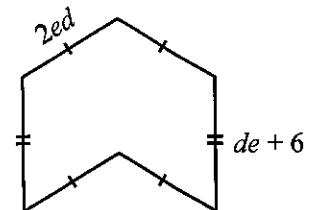
$$P = ac + ac + b + 7 + b + 7$$

$$P = 2ac + 2b + 14$$

22



23



24

