**Collecting like terms with more than one variable**

|  |  |  |
| --- | --- | --- |
| Green   1. a + b + a + b = 2. 3a + b + a + 2b = 3. f + g + 2f + g = 4. 3h + i + h + i = 5. 2p + 2q + p + q = 6. a + b + c + a + b + c + a + b + c = 7. 9f + g + h + f = 8. 10g + 2h + 5g + 4h = 9. 30t + 3u + 10t + 7u = 10. 2x + 3y + 2z + x + 3y + 3z = | Amber   1. 5a + b – a + b = 2. 3y + 4a – y – a = 3. 5f + 4g – 2f – 2g = 4. 2a + 2b + 2c – a – b – c = 5. 4x + 5y + 6z – 4y – 4x + z = 6. 3r + 4s – r – 2s = 7. 7w – 2d + w + 4d = 8. 3q – 4g + q + 9g = 9. 4r – 5g + r + 10g = 10. 8t – a – b – t = | Red   1. 4a + b – 5a = 2. 6k + 3p – 8k = 3. 3e + 5f + e – 10f = 4. -4e – 5f – 6e -7f = 5. ab + c + ab + 2c = 6. 3ab + 3f – ab + f = 7. 3ab + 2gh + 5ab – 4gh = 8. 3ab + 2bc – ac + 2ab + ac = 9. –xy + 3y + 4xy – y = 10. a + b + c + ab + bc + ac – a – ab – 2bc = |

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**Collecting like terms with more than one variable**

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| Green   1. a + b + a + b = 2. 3a + b + a + 2b = 3. f + g + 2f + g = 4. 3h + i + h + i = 5. 2p + 2q + p + q = 6. a + b + c + a + b + c + a + b + c = 7. 9f + g + h + f = 8. 10g + 2h + 5g + 4h = 9. 30t + 3u + 10t + 7u = 10. 2x + 3y + 2z + x + 3y + 3z = | Amber   1. 5a + b – a + b = 2. 3y + 4a – y – a = 3. 5f + 4g – 2f – 2g = 4. 2a + 2b + 2c – a – b – c = 5. 4x + 5y + 6z – 4y – 4x + z = 6. 3r + 4s – r – 2s = 7. 7w – 2d + w + 4d = 8. 3q – 4g + q + 9g = 9. 4r – 5g + r + 10g = 10. 8t – a – b – t = | Red   1. 4a + b – 5a = 2. 6k + 3p – 8k = 3. 3e + 5f + e – 10f = 4. -4e – 5f – 6e -7f = 5. ab + c + ab + 2c = 6. 3ab + 3f – ab + f = 7. 3ab + 2gh + 5ab – 4gh = 8. 3ab + 2bc – ac + 2ab + ac = 9. –xy + 3y + 4xy – y = 10. a + b + c + ab + bc + ac – a – ab – 2bc = |

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**Solutions: Collecting like terms with more than one variable**

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| --- | --- | --- |
| Green   1. a + b + a + b = 2a + 2b 2. 3a + b + a + 2b = 4a + 3b 3. f + g + 2f + g = 3f + 2g 4. 3h + i + h + i = 4h + 2i 5. 2p + 2q + p + q = 3p + 3q 6. a + b + c + a + b + c + a + b + c = 2a + 2b + 2c 7. 9f + g + h + f = 10f + g + h 8. 10g + 2h + 5g + 4h = 15g + 6h 9. 30t + 3u + 10t + 7u = 40t + 10u 10. 2x + 3y + 2z + x + 3y + 3z = 3x + 6y + 5z | Amber   1. 5a + b – a + b = 4a + 2b 2. 3y + 4a – y – a = 2y + 3a 3. 5f + 4g – 2f – 2g = 3f + 2g 4. 2a + 2b + 2c – a – b – c = a + b + c 5. 4x + 5y + 6z – 4y – 4x + z = y + 7z 6. 3r + 4s – r – 2s = 2r + 2s 7. 7w – 2d + w + 4d = 8w + 2d 8. 3q – 4g + q + 9g = 4q + 5g 9. 4r – 5g + r + 10g = 5r + 5g 10. 8t – a – b – t = 7t – a - b | Red   1. 4a + b – 5a = -a + b 2. 6k + 3p – 8k = -2k + 3p 3. 3e + 5f + e – 10f = 4e – 5f 4. -4e – 5f – 6e -7f = -10e – 12f 5. ab + c + ab + 2c = 2ab + 3c 6. 3ab + 3f – ab + f = 2ab + 4f 7. 3ab + 2gh + 5ab – 4gh = 8ab – 2gh 8. 3ab + 2bc – ac + 2ab + ac = 5ab + 2bc 9. –xy + 3y + 4xy – y = 3xy + 2y 10. a + b + c + ab + bc + ac – a – ab – 2bc = 2a + b + c –bc + ac |

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