

Name: _____

IM2 Semester 1 Final Exam Review A
(Study Guide Questions 1-3, 19-21 & 25-27)

Combining Like Terms

To solve for x (problems 1-3):

Start with distribution (multiply both terms in the parentheses by the number in front).

Next, add or subtract one of the terms to the other side.

Then, add or subtract the other term from the 2-term side to move it.

Finally, divide by the number in front of x.

1. $18 + 7x = 3(x - 2)$	2. $-2(x + 4) = 3x + 12$	3. $9(x + 7) = 3 - 3x$
4. $6(x - 1) = 3x + 9$	5. $-4(3x - 2) = -17 - 11x$	6. $5x - 12 = 8(x + 6)$
7. $-10x - 5 = -5(x - 3)$	8. $72 - 2x = 4(x + 3)$	9. $-8(x - 4) = 12 + 2x$

To find the difference by combining like terms (problems 19-21):

Start with distribution of the sign (multiply all three terms in the second parentheses by -1).

Next, add or subtract to combine the front numbers of each set of terms

that have the same variable (with the same exponent)!

Write the terms in order of biggest exponent to smallest exponent.

10. $(4x^2 - 2x - 9) - (9x^2 - x + 3)$	11. $(-5x^2 + 5x + 6) - (x^2 + 7x - 6)$	12. $(-8x^2 + 2x - 4) - (8x^2 - 7x - 3)$
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13. $(-6x - 2) - (-4x^2 + 7x - 9)$	14. $(-8x^2 + x + 4) - (5x^2 - 9x + 2)$	15. $(-2x^2 + 6x) - (-x^2 - 3x + 3)$
16. $(-4x^2 + 9x + 7) - (-5x^2 - 6)$	17. $(8x^2 - 7x + 1) - (-3x^2 + 4x - 4)$	18. $(-9x^2 - 1) - (6x^2 + x - 4)$

To find the sum by combining like terms (problems 19-21):

Start with distribution of the sign (multiply all three terms in the second parentheses by +1).

Next, add or subtract to combine the front numbers of each set of terms

that have the same variable (with the same exponent)!

Write the terms in order of biggest exponent to smallest exponent.

19. $(4a^2 - 2a - 9) + (9a^2 - a + 3)$	20. $(-5b^2 + 5b + 6) + (b^2 + 7b - 6)$	21. $(-8c^2 + 2c - 4) + (8c^2 - 7c - 3)$
22. $(-6d - 2) + (-4d^2 + 7d - 9)$	23. $(-8g^2 + g + 4) + (5g^2 - 9g + 2)$	24. $(-2h^2 + 6h) + (-h^2 - 3h + 3)$
25. $(-4k^2 + 9k + 7) + (-5k^2 - 6)$	26. $(8n^2 - 7n + 1) + (-3n^2 + 4n - 4)$	27. $(-9p^2 - 1) + (6p^2 + p - 4)$

Answers

1. $x = -6$	2. $x = -4$	3. $x = -5$
4. $x = 5$	5. $x = 25$	6. $x = -20$
7. $x = -4$	8. $x = 10$	9. $x = 2$
10. $-5x^2 - x - 12$	11. $-6x^2 - 2x + 12$	12. $-16x^2 + 9x - 1$
13. $4x^2 - 13x + 7$	14. $-13x^2 + 10x + 2$	15. $-x^2 + 9x - 3$
16. $x^2 + 9x + 13$	17. $11x^2 - 11x + 5$	18. $-15x^2 - x + 3$
19. $13a^2 - 3a - 6$	20. $-4b^2 + 12b$	21. $-5c - 7$
22. $-4d^2 + d - 11$	23. $-3g^2 - 8g + 6$	24. $-3h^2 + 3h + 3$
25. $-9k^2 + 9k + 1$	26. $5n^2 - 3n - 3$	27. $-3p^2 + p - 5$