

2.1 Simplifying Algebraic Expressions

Name _____

| | |
|--|------------------------|
| Determine the coefficient of each term. | |
| 1. $3x$ | 2. $-7x$ |
| 3. x^2 | 4. xy |
| Tell whether the two terms are "like terms" or "unlike term." | |
| 5. $5x$ $3x$ | 6. $-2x$ $7x$ |
| 7. $5x$ $4y$ | 8. $5x^2$ $3x$ |
| Simplify, if possible. | |
| 9. $4a + 7a$ | 10. $a + 7a$ |
| 11. $-3x + 9x - 12y$ | 12. $-4a + 7a - 2b$ |
| 13. $-6a + 2 - 4a$ | 14. $-8m + m - 9 - 2m$ |
| 15. $3(x - 4) + 9x - 2$ | 16. $2x + 7(-2x - 1)$ |
| Answers: 1. 3; 3. 1; 5. like; 7. unlike; 9. $11a$; 11. $6x - 12y$ 13. $-10a + 2$; 15. $12x - 14$ | |

Simplify.

17. $-3(2x + 1) + 2(3x - 4)$

18. $5(3x + 4) + 2(3x - 1)$

19. $5x^2 - 3x + x^2 + 2$

20. $4 + 3x^2 - 2x + 4x^2$

21. $3(3y - 4) - (7y - 4)$

22. $-5(2m - 3) - (m - 2)$

23. $7 - 3(4x - 5)$

24. $-2 + 5(-3x - 2)$

25. $-7x + (4x - 5) \cdot 3$

26. $x + (2x - 3)(4)$

Answers: **17.** -11 ; **19.** $6x^2 - 3x + 2$; **21.** $2y - 8$; **23.** $-12x + 22$; **25.** $5x - 15$

Translate to an algebraic expression. Let x represent the unknown number.

27. The sum of the square of a number and 7.

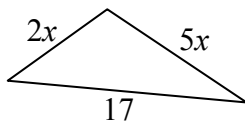
28. The sum of 5 times a number and 3.

29. Nine less than 3 times a number.

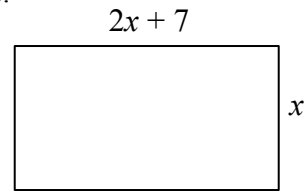
30. Nine less than the square of a number.

Find a simplified expression for the perimeter of each figure.

31.



32.



33. In a recent election for mayor, the first candidate received x votes. The second candidate received twice as many votes as the first, and the third candidate received 275 less votes than the first. Write expressions that represent the number of votes received by the second and third candidates.

First candidate's votes = x

Second candidate's votes = _____

Third candidate's votes = _____

34. Write and simplify an expression that represents the total number of votes received by the three candidates in the previous problem.

Answers: **27.** $x^2 + 7$; **29.** $3x - 9$; **31.** $7x + 17$; **33.** $2x, x - 275$