

1. Expand $(x + 3)^2$.

$$x^2 + 2(3)x + 9$$

Answer: $x^2 + 6x + 9$

2. Expand $(x - 5)^2$.

$$x^2 - 2(5)x + 25$$

Answer: $x^2 - 10x + 25$

3. Is $x^2 + 8x + 16$ a perfect square? Write it as $()^2$.

Half of 8 is 4; $4^2 = 16$

Answer: $(x + 4)^2$

4. Is $x^2 + 10x + 25$ a perfect square?

Half of 10 is 5; $5^2 = 25$

Answer: yes, $(x + 5)^2$

5. Fill the blank: $x^2 + 12x + \underline{\hspace{1cm}}$ is a perfect square.

Half of 12 is 6; 6^2

Answer: 36

6. Fill the blank: $x^2 - 6x + \underline{\hspace{1cm}}$.

Half of -6 is -3; 9

Answer: 9

7. Is $x^2 + 7x + 12$ a perfect square? Why or why not?

Half of 7 = 3.5; $3.5^2 = 12.25$, not 12

Answer: No

8. Write $(2x + 3)^2$ as a trinomial.

$$4x^2 + 2(2x)(3) + 9$$

Answer: $4x^2 + 12x + 9$

9. What number completes $x^2 - 14x + \underline{\hspace{1cm}}$, and what is the factored square? ★ challenge

Half of -14 is -7; 49

Answer: 49; $(x - 7)^2$

10. $x^2 + bx + 81$ is a perfect square. Find the two possible values of b. ★ challenge

$$81 = n^2, n = \pm 9; b = 2n$$

Answer: $b = 18$ or $b = -18$