

## Expression and Equations Level 2-Part 2

1. Factor the following: $x^3 - 7x^2 + 3x - 21$
2. Factor the following: $x^3 + x^2 + x + 1$
3. Factor the following: $x^3 - 5x^2 - 4x + 20$
4. Factor the following: $x^3 + 2x^2 + 4x + 8$
5. $f(x) = ax^2 + 15$ If $f(6)=159$ What is $f(-3)$ ?
6. $f(x) = ax^2 + 10$ If $f(6)=-206$ What is $f(1)$ ?
7. $f(x) = ax^2 + 1$ If $f(-7)=197$ What is $f(-2)$ ?
8. $f(x) = ax^2 + 9$ If $f(-5)=-66$ What is $f(3)$ ?

9. What is the value of  $x$ :  $2x - 7 = 5x - 31$

10. What is the value of  $x$ :  $3x - 7 = -4x - 42$

11. What is the value of  $x$ :  $-2x - 7 = x - 13$

12. What is the value of  $x$ :  $-4x - 3 = x + 7$

13. Solve for  $x$ :  $2x + 6 > -3x - 4$

14. Solve for  $x$ :  $4x - 4 > 3x - 14$

15. Solve for  $x$ :  $2x + 3 > 4x - 13$

16. Solve for  $x$ :  $4x + 5 > -4x - 19$

17. Solve for x and y:

$$\begin{aligned}y + 2x &= -7 \\ -2x + 3y &= 11\end{aligned}$$

18. Solve for x and y:

$$\begin{aligned}y + 2x &= -3 \\ -3x + 3y &= -27\end{aligned}$$

19. Solve for x and y:

$$\begin{aligned}y + 2x &= 18 \\ 2x + 2y &= 24\end{aligned}$$

20. Solve for x and y:

$$\begin{aligned}y + 2x &= -13 \\ -3x + y &= 2\end{aligned}$$

Answers:

1	$(x^2 - 7)(x + 3)$
2	$(x^2 + 1)(x + 1)$
3	$(x^2 - 5)(x - 4)$
4	$(x^2 + 2)(x + 4)$
5	$f(-3) = 51$
6	$f(1) = 4$
7	$f(-2) = 17$
8	$f(3) = -18$
9	$x = 8$
10	$x = -5$
11	$x = 2$
12	$x = -2$
13	$x > -2$
14	$x > -10$
15	$x < 8$
16	$x > -3$
17	$x = -4, y = 1$
18	$x = 2, y = -7$
19	$x = 6, y = 6$
20	$x = -3, y = -7$