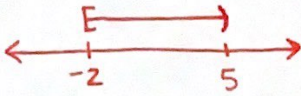


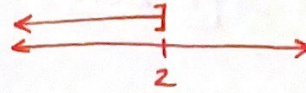
Graph each set and write the solution in the opposite notation then it was given.

1. $[-2, 5)$



$\{x \mid -2 \leq x < 5\}$

2. $\{x \mid x \leq 2\}$



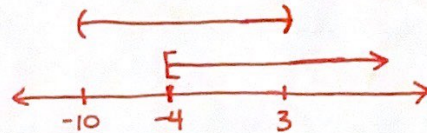
$(-\infty, 2]$

3. $\{x \mid 1 < x \leq 4\} \cup \{x \mid x > 5\}$

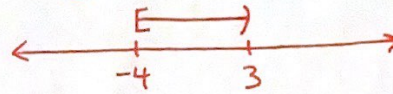


$(1, 4] \cup (5, \infty)$

4. $(-10, 3) \cap [-4, \infty)$



$\{x \mid -4 \leq x < 3\}$



Factor completely.

5. $x^2 + 2x - 63$

$$\begin{array}{c} \widehat{9} \quad \widehat{-7} \\ (x+9)(x-7) \end{array}$$

6. $x^2 + 12x + 36$

$$\begin{array}{c} \widehat{6} \quad \widehat{6} \\ (x+6)^2 \end{array}$$

7. $6x^2 + 7xy - 3y^2$

$$\begin{array}{c} \widehat{-18} \\ \widehat{9} \quad \widehat{-2} \\ \frac{26x}{93} \quad \frac{36x}{-21} \\ (2x+3y)(3x-y) \end{array}$$

8. $3x^4 + 27x^3 + 54x^2$

$$\begin{array}{c} \widehat{3} \quad \widehat{6} \\ 3x^2(x^2+9x+18) \\ 3x^2(x+3)(x+6) \end{array}$$

9. $x^2 - 81$

$(x+9)(x-9)$

10. $10x^2 + 30x - 280$

$$\begin{array}{c} \widehat{7} \quad \widehat{-4} \\ 10(x^2+3x-28) \\ 10(x+7)(x-4) \end{array}$$

11. $4x^2 - 121$

$$(2x+11)(2x-11)$$

12. $8x^3 + 64 \Rightarrow 8(x^3 + 8)$

$a = x$
 $b = 2$

$$8(x+2)(x^2 - 2x + 4)$$

13. $x^2 - 24x + 144$

$$(x-12)^2$$

14. $x^3 - 27$

$a = x$
 $b = 3$

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

15. $15x^4 + 45x^2$

$$15x^2(x^2 + 3)$$

16. $4x^2 + 12xy + 9y^2$

$\frac{24x}{63} \quad \frac{24x}{63}$

$\widehat{36}$
 $\widehat{66}$

$$(2x+3y)(2x+3y)$$

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

17. $x^3 + 8y^3$

$a = x$
 $b = 2y$

$$(x+2y)(x^2 - 2xy + 4y^2)$$

18. $36x^2 - 64y^2 \Rightarrow 4(9x^2 - 16y^2)$

$$4(3x+4y)(3x-4y)$$

19. $6x^3 + 64x^2 + 40x$

$$2x(3x+2)(x+10)$$

20. $64x^3 + 27$

$a = 4x$
 $b = 3$

$$(4x+3)(16x^2 - 12x + 9)$$