1. Adding, Subtracting, and Multiplying monomials and binomials and trinomials.
2. $2x\left(3x+1\right)$
3. $\left(3x-1\right)\left(x+2\right)$
4. $2x(x^{2}+3x-1)$
5. $Add:\left(4x+10\right)+\left(3x-2\right)$
6. Subtract: $\left(6x-3\right)-(2x+5)$
7. Multiplying Special cases.
8. Perfect square trinomial; $\left(x+2\right)^{2}$
9. Difference of squares; $\left(x-4\right)\left(x+4\right)$
10. Factoring
11. Using GCF, factor: $6x^{2}+18x$
12. Using Simple factoring (big X), factor: $x^{2}+5x+6$
13. Using X-box, factor: $2x^{2}+13x+15$
14. Using Complete the square – find “c” and rewrite as factors: $x^{2}+8x+c$
15. Solving Quadratics equations
16. Using GCF solve: $3x^{2}-18x=0$
17. By taking square root, solve: $4x^{2}=49$
18. Using Zero-product property, solve: $\left(x-3\right)\left(2x+7\right)=0$
19. Using Simple Factoring, solve $x^{2}-x-6=0$
20. Using X-box, solve $y=3x^{2}-8x+4$
21. Using the Quadratic formula, solve $y=2x^{2}+3x-5$
22. Graphing quadratic equations
23. Find the vertex, y-intercept, and roots, and graph $y=x^{2}-3x-10$



1. Transforms with quadratic graphs

Parent Function: $y=x^{2}$

$$y=a\left(x-h\right)^{2}+k$$

|  |  |
| --- | --- |
| 1. $y=2x^{2}-3$

 | 1. $y=-2\left(x-1\right)^{2}$

 |
| 1. $y=\left(x+1\right)^{2}+5$

 | 1. $y=5\left(x+2\right)^{2}-3$

 |
| 1. $y=x^{2}+3$

 | 1. $y=-\left(x+2\right)^{2}+4$

 |

1. If $a>0 $the graph opens \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. If $a<0$ the graph opens \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. If $h>0$ the graph slides \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. $if h<0 $the graph slides \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. If $k>0$ the graph slides \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. $if k<0 $the graph slides \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. Solving systems of quadratic and linear equations.
8. $y=x^{2}-9x+18 and y=4x-12$
9. $y=x^{2}+6x+3 and y=3x-7$

 Applications

1. Find the maximum height of a baseball that follows the path modeled by the equations $h\left(t\right)=-16t^{2}+32t+6.$
2. Using the same equation above, how many seconds after the ball is hit does it land on the ground?
3. Complex numbers.
4. Add: $\left(3-4i\right)+\left(2-6i\right)$
5. Subtract: $\left(10+6i\right)-\left(3+2i\right)$
6. Solve the equation by taking square root: $x^{2}+49=0$