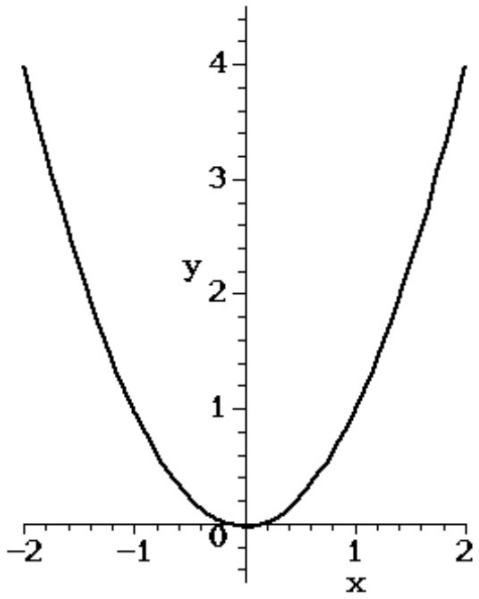
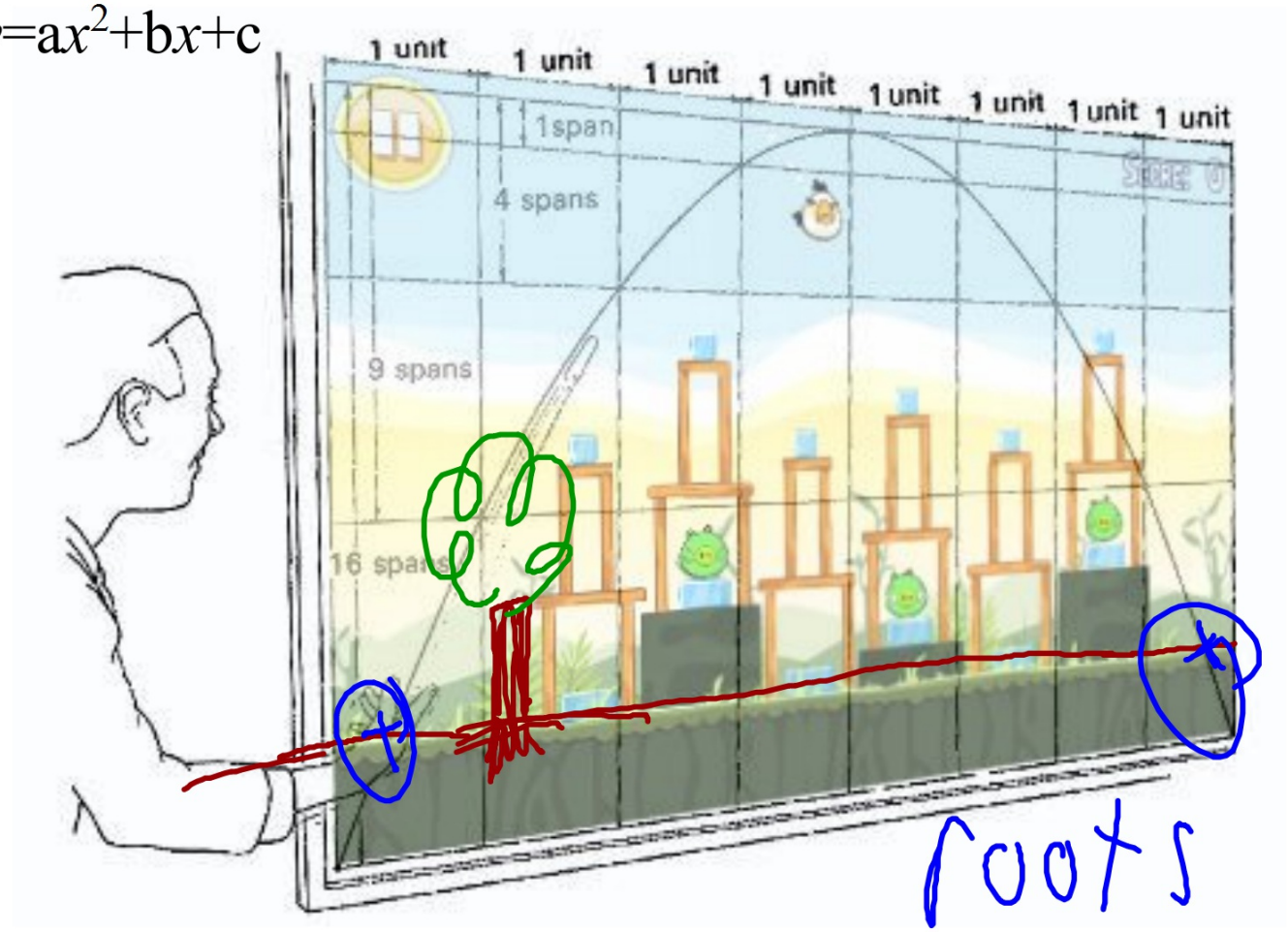
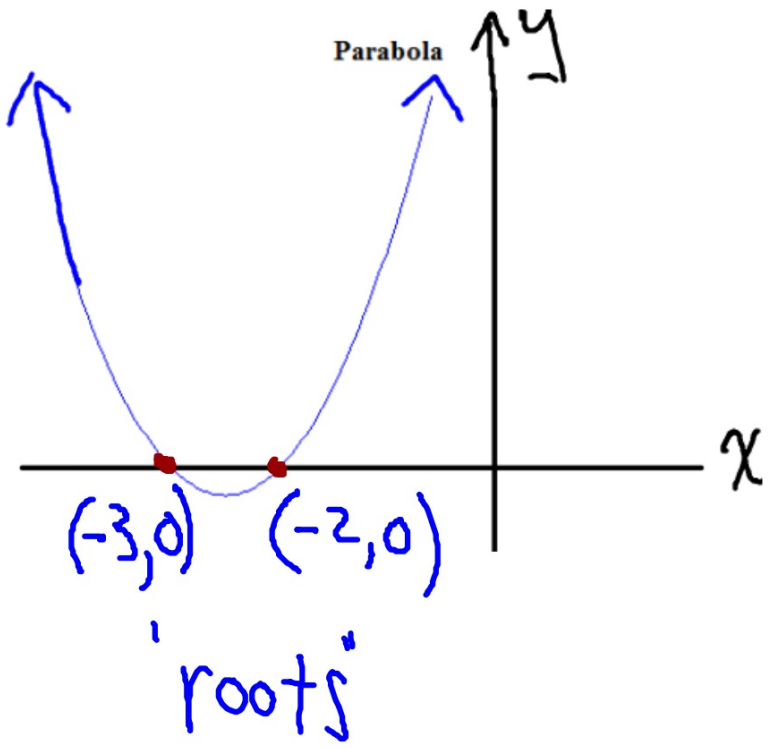
Quadratic Graphs

$y=ax^2+bx+c$



$y=ax^2+bx+c$


1 unit
1 unit
1 unit
1 unit
1 unit
1 unit
1 unit
1 unit
1span
4 spans
9 spans
16 spans
roots



$0 = x^2 + 5x + 6$

$0 = (x+3)(x+2)$

-3 -2

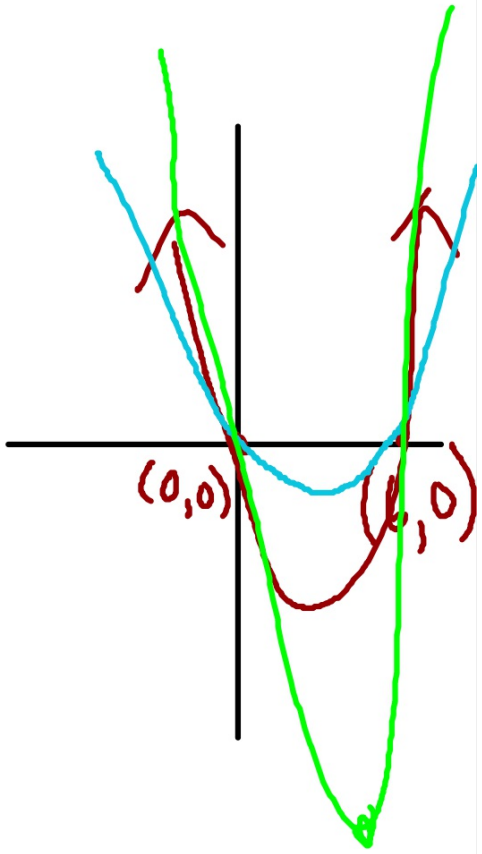
The Zero-Product Property

$ax^2 + bx + c$

$y = x^2 - 6x$

$y = x(x - 6)$

0 6



$y=(2x-3)(4x+5)$ $8x^2-2x-15$

$2x-3=0$

$+3 \quad +3$

$\frac{2}{2}x=\frac{3}{2}$

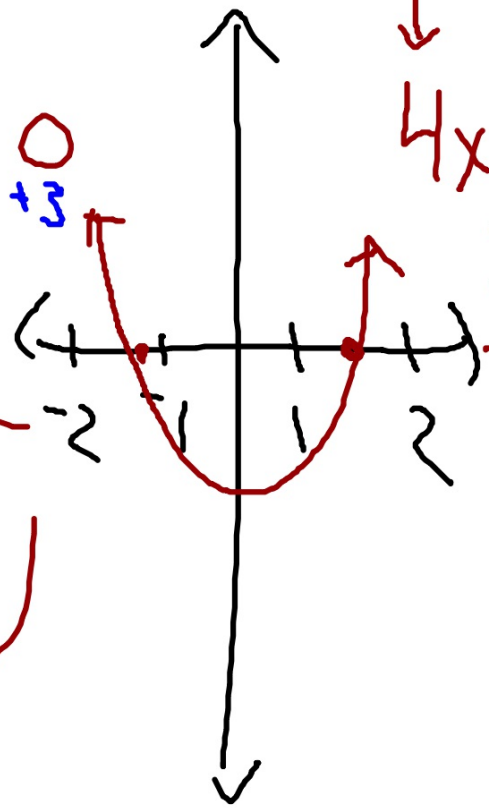
$x=\frac{3}{2}$

$4x+5=0$

$-5 \quad -5$

$\frac{4}{4}x=\frac{-5}{4}$

$x=-\frac{5}{4}$



Use the Zero-Product Property to solve each equation.

(3,0) (7,0) (0,0) (-1,0)

1. $(x - 3)(x - 7) = 0$
2. $(x + 4)(2x - 9) = 0$
3. $t(t + 1) = 0$
4. $-3n(2n - 5) = 0$
5. $(7x + 2)(5x + 4) = 0$
6. $(4a - 7)(3a + 8) = 0$

Factor each polynomial. Then solve using the Zero-Product Property.

7. $x^2 + 7x + 10 = 0$

$(x+5)(x+2)=0$

8. $k^2 + 7k + 12 = 0$

Solve by factoring.

9. $b^2 + 3b - 4 = 0$
10. $m^2 - 5m - 14 = 0$
11. $w^2 - 8w = 0$
12. $x^2 - 16x + 55 = 0$
13. $k^2 - 3k - 10 = 0$
14. $n^2 + n - 12 = 0$
15. $x^2 + 8x = -15$

+15 +15

16. $t^2 - 3t = 28$
17. $n^2 = 6n$
18. $2c^2 - 7c = -5$
19. $3q^2 + 16q = -5$
20. $4y^2 = 25$

21. The sides of a square are all increased by 3 cm. The area of the new square is 64 cm^2. Find the length of a side of the original square.