1.9

$y < -x^2 + 3x + 10$ (dashed)

SF $\frac{-b}{2a}$

Test (0,0)

$0 < 10$

y-int: 10

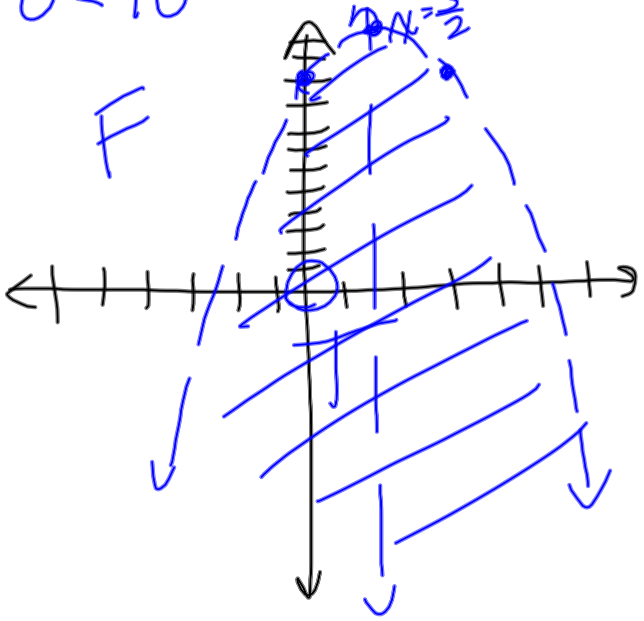
$\frac{-b}{2a} = \frac{-3}{2(-1)} = \frac{3}{2}$

F

V: $\left(\frac{3}{2}, \frac{49}{4}\right)$

$-\frac{9}{4} + \frac{9}{2} + 10$

$\frac{9}{4} + \frac{40}{4} = \frac{49}{4} \approx 12.25$




Inequalities:

(1) Dashed $(<, >)$ or Solid $(\leq, \geq)$ boundary

(2) Shade

– If $y <$ $y \leq$ } usually shade below

OR $y >$ $y \geq$ } usually shade above

– Plug in a ~~value~~ point (usually (0,0), unless that pt is on the boundary)

If it makes a

True statement → shade that area

False statement → shade the other area

Shade the TRUE area!

$y < -x^2 - 4x$

dashed boundary

$y <$ shade below

OR Test $(0,2)$

$2 < -0^2 - 4\cdot 0$

$2 < 0$ F

$-\frac{b}{2a}$

v: $(h,k)$

x-ints: $p, q$

* standard $y = ax^2 + bx + c$

vertex $y = a(x-h)^2 + k$

intercept $y = a(x-p)(x-q)$

① y-int: 0

② $-\frac{b}{2a} = \frac{4}{2(-1)} = -2$

aos: $x = -2$

vertex: $(-2, 4)$

$y = -(-2)^2 - 4(-2)$

$-4 + 8$

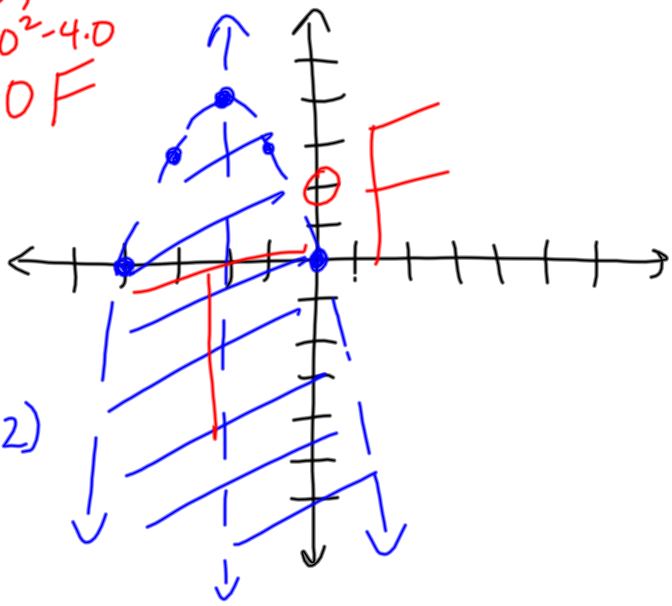
$4$

| $x$ | $y$ |
|---|---|
| $-1$ | $3$ |

$y = -(-1)^2 - 4(-1)$

$-1 + 4$

$3$




Apr 10-8:32 AM

# Polynomials

| degree | name |
|---|---|
| 0 | constant |
| 1 | linear |
| 2 | quadratic |
| 3 | cubic |
| 4 | quartic |
| 5 | quintic |

$y = 3$

* exponents of the variables have to be positive integers, 1, 2, 3, ....

Determine whether the function is a polynomial function. If so, write it in standard form, and state its degree, type and leading coefficient.

a. $f(x) = 6x^{\frac{1}{2}} - 5x$

not a polynomial

$x^{\frac{1}{2}} = \sqrt{x}$ → not allowed

b. $g(x) = -8x^4 - 4x^2 + \sqrt{10} + x^3$

$g(x) = -8x^4 + x^3 - 4x^2 + \sqrt{10}$

degree: 4 quartic

LC: $-8$

c. $f(x) = 3x^2 - 5x^{-3}$

not a polynomial

p. 99(3-8)

p. 100(24-31, 50)

p. 70(3-5, 10, 13, 18-19)