Factor the expression.

$12x^3 - 24x^6 - 4x^4$

$-24x^6 - 4x^4 + 12x^3$

$\boxed{-4x^3(6x^3 + x - 3)}$

GCF only

$g(x) = -3x + 1$
$f(x) = x^2 + 7$

$g(26) = \boxed{-77}$

$g(26) = -3(26) + 1$

$f(x) = 23, \ x = \overset{+}{-}4, -4$

$23 = x^2 + 7$

$\sqrt{16} = \sqrt{x^2} \quad x = \pm 4$

Solve the following quadratic by factoring.

$f(x) = -3x^2 - 24x - 48$

$0 = -3(x^2 + 8x + 16)$

$0 = -3(x^2 + 4x + 4x + 16)$

$= -3[x(x+4) + 4(x+4)]$

m	a
16	8
4·4	4+4

$\boxed{-3(x+4)(x+4) = 0}$

$x + 4 = 0$
$-4 \ -4$
$\boxed{x = -4}$

Final F.F.

Find the discriminant and find the nature of the roots for the quadratic below.

$f(x) = -3x^2 - 24x - 48$

Disc = 0
1 R rational Root

Solve the following quadratic by factoring.

$3x^2 + 5x - 6 = x^2 + 16x$
$-x^2 - 16x \quad -x^2 - 16x$

$2x^2 - 11x - 6 = 0$

m	a
-12	-11
-12·1	-12+1

$(2x^2 - 12x) + x - 6 = 0$

$2x(x-6) + 1(x-6) = 0$

$(2x+1)(x-6) = 0$

$2x + 1 = 0 \quad x - 6 = 0$

$x = -1/2 \quad x = 6$

Solve the quadratic below using the quadratic formula.

$f(x) = -3x^2 - 24x - 48$

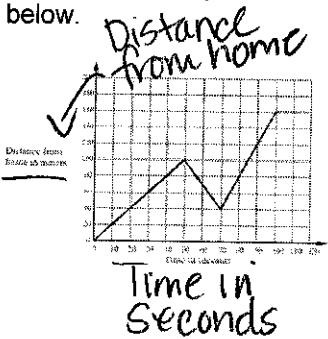$a = -3$
$b = -24$
$c = -48$

Disc = 0

$\dfrac{-b \pm \sqrt{dis}}{2a}$

$\dfrac{-(-24) \pm \sqrt{0}}{2(-3)}$

$\dfrac{24 \pm 0}{-6} = \dfrac{24}{-6} \ \boxed{-4}$

Write a scenario that would match the graph provided below.

Distance from home
Time in Seconds

Someone running or biking from their house.

Graph the Quadratic S.F.

$f(x) = -3x^2 - 24x - 48$

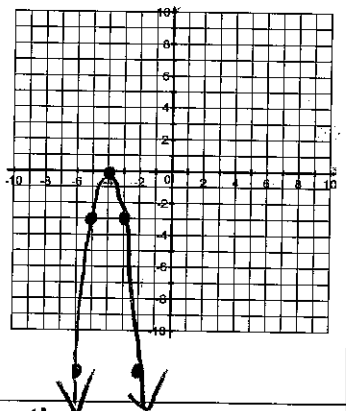| x	y
-2	-12
-3	-3
-4	0
-5	-3
-6	-12

$h = \dfrac{-b}{2a}$

$= \dfrac{-(-24)}{2(-3)}$

$= -4$

$k = 0$

SAT Question:

The number of states that joined the United States between 1776 and 1849 is twice the number of states that joined between 1850 and 1900. If 30 states joined the United States between 1776 and 1849 and x states joined between 1850 and 1900, which of the following equations is true?

$30 = 2x$

A) 30x = 2
B) 2x = 30
C) $\frac{x}{2} = 30$
D) x + 30 = 2

SAT Question:

X	F(x)
0	3
2	1
4	0
5	-2

The function F(x) is defined by a polynomial with some values of x and F(x) in the table. Which of the following must be a factor of F(x)?

A) x - 2
B) x - 3
C) x - 4
D) x - 5

Factors give you zeros, x-int if x=4 then (x-4)