

Quad 8 Answers

Sketching quadratics p.13

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

i - $f(x) = (x+3)(x-1)$

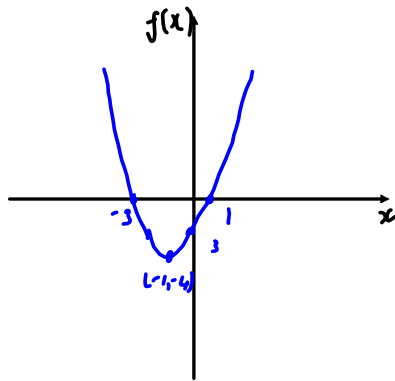
Roots: $(-3, 0)$ $(1, 0)$

ii - $x = -1$

iii - $f(x) = (x+1)^2 - 4$

min T.P. $(-1, -4)$

iv - $f(0) = -3$



b) $g(x) = x^2 + 2x - 8$

i - $g(x) = (x+4)(x-2)$

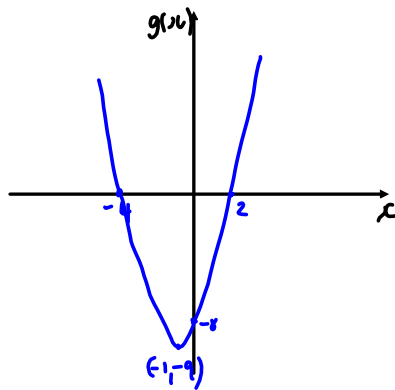
Roots: $(-4, 0)$ $(2, 0)$

ii - $x = -1$

iii - $g(x) = (x+1)^2 - 9$

TP: $(-1, -9)$

iv - $g(0) = -8$



c) $h(x) = x^2 - 4x - 5$

i - $h(x) = (x-5)(x+1)$

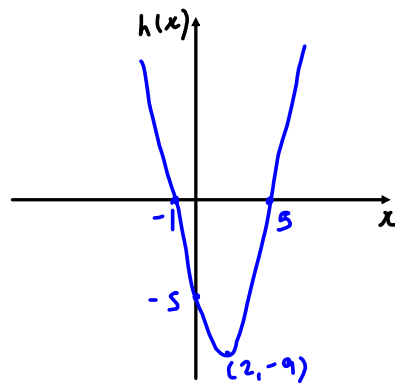
Roots: $(5, 0)$ $(-1, 0)$

ii - $x = 2$

iii - $h(x) = (x-2)^2 - 9$

$(2, -9)$

iv - $h(0) = -5$



Quad 8 Answers

d) $f(x) = x^2 + 6x$

i - $f(x) = x(x+6)$

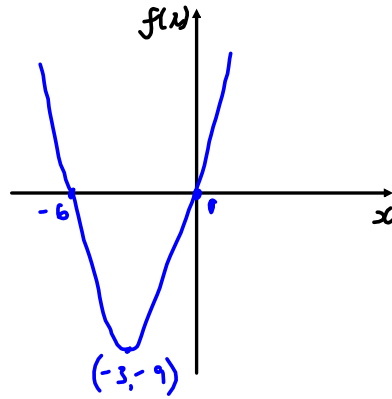
Roots: $(0,0)$ $(-6,0)$

ii - $x = -3$

iii - $f(x) = (x+3)^2 - 9$

TP: $(-3, -9)$

iv - $f(0) = 0$



e) $g(x) = x^2 - 4x$

i - $g(x) = x(x-4)$

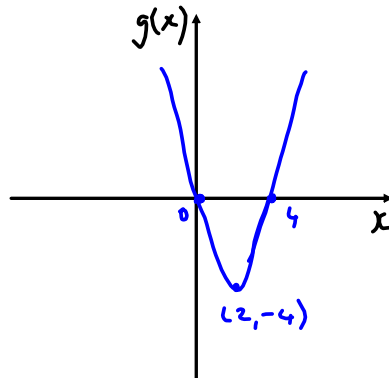
Roots: $(0,0)$ $(4,0)$

ii - $x = 2$

iii - $g(x) = (x-2)^2 - 4$

TP: $(2, -4)$

iv - $g(0) = 0$



f) $h(x) = 8x - x^2$

i - $h(x) = x(8-x)$

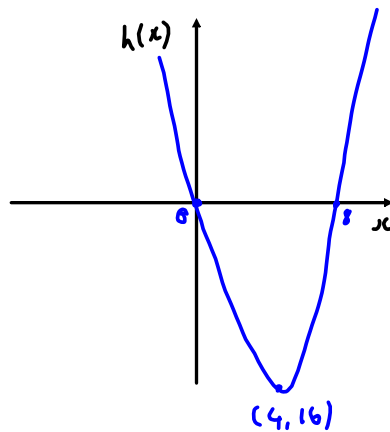
Roots: $(0,0)$ $(8,0)$

ii - $x = 4$

iii - $h(4) = 8(4) - 16$
 $= 32 - 16 = 16$

TP: $(4, 16)$

iv - $h(0) = 0$



Quad 8 Answers

g) $f(x) = 8 - 2x - x^2$

i- $f(x) = (4+x)(2-x)$

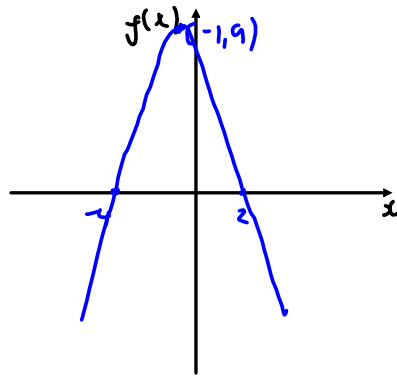
Roots: $(-4, 0)$ $(2, 0)$

ii - $x = -1$

iii - $f(-1) = 8 + 2 - 1$
 $= 9$

TP: $(-1, 9)$

iv - $f(0) = 8$



h) $g(x) = 7 + 6x - x^2$

i - $g(x) = (7-x)(1+x)$

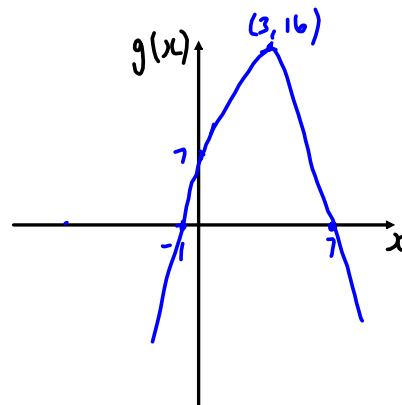
Roots: $(7, 0)$ $(-1, 0)$

ii - $x = 3$

iii - $g(3) = 7 + 18 - 9$
 $= 16$

TP: $(3, 16)$

iv - $g(0) = 7$



i) $h(x) = x^2 - 10x + 21$

i - $h(x) = (x-7)(x-3)$

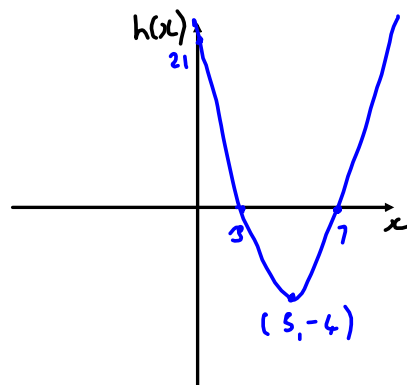
Roots: $(7, 0)$ $(3, 0)$

ii - $x = 5$

iii - $h(5) = 25 - 50 + 21$
 $= -4$

TP: $(5, -4)$

iv - $h(0) = 21$



Quad 8 Answers

j) $f(x) = x^2 - 3x - 4$

i - $f(x) = (x-4)(x+1)$

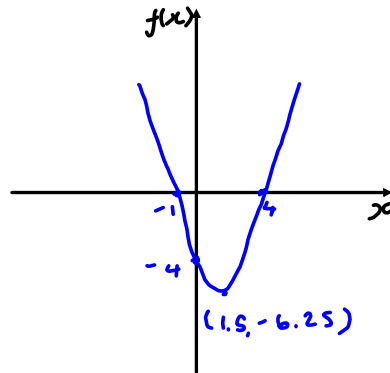
Roots: $(4,0)$ $(-1,0)$

ii - $x = 1.5$

iii - $f(x) = (x-1.5)^2 - 6.25$

TP: $(1.5, -6.25)$

iv - $f(0) = -4$



k) $g(x) = 7 + 6x - x^2$

i - $g(x) = (1+x)(7-x)$

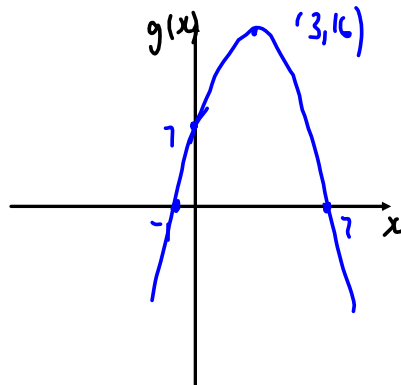
Roots: $(-1,0)$ $(7,0)$

ii - $x = 3$

iii - $g(3) = 7 + 18 - 9 = 16$

TP: $(3, 16)$

iv - $g(0) = 7$



l) $h(x) = 5x - x^2$

i - $h(x) = x(5-x)$

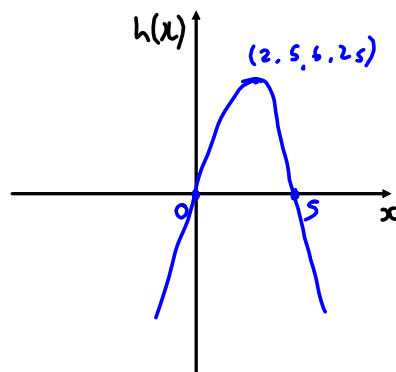
Roots: $(0,0)$ $(5,0)$

ii - $x = 2.5$

iii - $h(2.5) = 6.25$

TP: $(2.5, 6.25)$

iv - $h(0) = 0$



Quad 8 Answers

m) $f(x) = 10 - 3x - x^2$

i- $f(x) = (5 + x)(2 - x)$

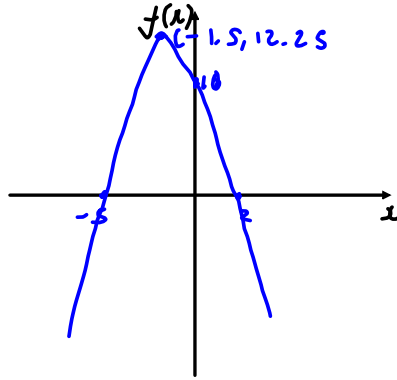
Roots: $(-5, 0)$ $(2, 0)$

ii- $x = -1.5$

iii- $f(-1.5) = 12.25$

TP: $(-1.5, 12.25)$

iv- $f(0) = 10$



n) $g(x) = 16 - x^2$

i- $g(x) = (4 - x)(4 + x)$

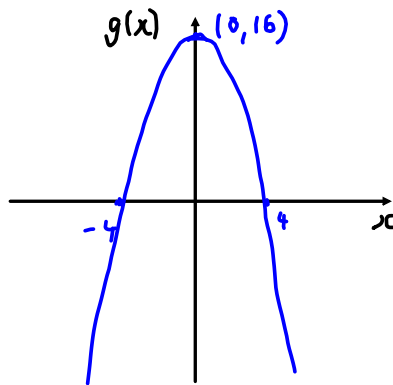
Roots: $(4, 0)$ $(-4, 0)$

ii- $x = 0$

iii- $f(0) = 16$

TP: $(0, 16)$

iv- $f(0) = 16$



o) $h(x) = x^2 - 9$

i- $h(x) = (x - 3)(x + 3)$

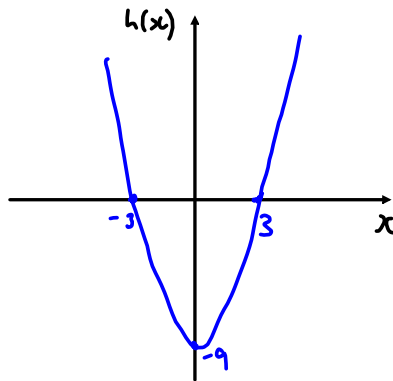
Roots: $(3, 0)$ $(-3, 0)$

ii- $x = 0$

iii- $h(0) = -9$

TP: $(0, -9)$

iv- $h(0) = -9$



Quad 8 Answers

$$2a) y = x^2 - 6x - 16$$

$$= (x - 8)(x + 2)$$

A (-2, 0) B (8, 0)

$$y = (x - 3)^2 - 25$$

C (3, -25)

At $x=0$: $y = -16$

D (0, -16)

d) $y = x^2 + 2x - 24$

$$= (x + 6)(x - 4)$$

M (-6, 0) N (4, 0)

At $x = -1$: $y = -25$

P (-1, -25)

At $x = 0$: $y = -24$

Q (0, -24)

b) $y = x^2 + 8x - 33$

$$= (x + 11)(x - 3)$$

E (-11, 0) F (3, 0)

$$y = (x + 4)^2 - 49$$

G (-4, -49)

At $x=0$: $y = -33$

H (0, -33)

e) $y = x^2 - 4x - 5$

$$= (x - 5)(x + 1)$$

R (-1, 0) S (5, 0)

At $x = 2$: $y = -9$

T (2, -9)

At $x = 0$: $y = -5$

U (0, -5)

c) $y = x^2 + 8x + 12$

$$= (x + 6)(x + 2)$$

I (-6, 0) J (-2, 0)

At $x = -4$: $y = -4$

K (-4, -4)

At $x = 0$: $y = 12$

L (0, 12)

f) $y = x^2 - 8x + 7$

$$= (x - 7)(x - 1)$$

A (1, 0) B (7, 0)

$$y = (x - 4)^2 - 9$$

C (4, -9)

At $x = 0$: $y = 7$

D (0, 7)