

Warm-Up

CST/CAHSEE	Review
<p>The graph of the equation $y = x^2 - x - 4$ is shown below.</p> <p>For what values of x is $y = 0$?</p> <p>A $x = -1$ only</p> <p>B $x = -4$ only</p> <p>C $x = -1$ and $x = 4$</p> <p>D $x = 1$ and $x = -4$</p> <ul style="list-style-type: none"> • Find the vertex of the parabola exactly. 	<p>Which is one of the solutions to the equation $x^2 - x - 4 = 0$?</p> <p>A $-\frac{1}{2} - \sqrt{\frac{17}{4}}$</p> <p>B $-\frac{1}{2} + \sqrt{\frac{17}{4}}$</p> <p>C $\frac{1}{2} + \sqrt{\frac{17}{4}}$</p> <p>D $\frac{1}{2} - \sqrt{\frac{17}{4}}$</p> <ul style="list-style-type: none"> • Write out the quadratic formula.
Current	Other
<p>What are the solutions for the quadratic equation $x^2 + 6x = 16$?</p> <p>A $-2, -8$</p> <p>B $-2, 8$</p> <p>C $2, -8$</p> <p>D $2, 8$</p> <ul style="list-style-type: none"> • Solve a second way. 	<p>Leanne correctly solved the equation $x^2 + 4x = 6$ by completing the square. Which equation is part of her solution?</p> <p>A $(x + 2)^2 = 8$</p> <p>B $(x + 2)^2 = 10$</p> <p>C $(x + 4)^2 = 10$</p> <p>D $(x + 4)^2 = 22$</p> <ul style="list-style-type: none"> • Solve the problem completely.

Warm-Up: Solutions

CST/CAHSEE

Review

The graph of the equation $y = x^2 - x - 2$ is shown below.

For what values of x is $y = 0$?

A $x = -1$ only

!

!"#\$%&'()*&'(*&+\$*,'%-.!/'!)"& *

!

012\$-;5<9=!>?@!5AB@6C5!9D5!E53<?<4!67!9D5!;?=FC?E?<3<9!3=!?9!F6<<5F9=!96!9D5!
4C3BD!67!3!G:3;C39?F!7:<F9?6<!3<;!9D5!=6@:9?6<=!67!9D5!C5@395;!G:3;C39?F!5G:39?6<H

!

4)&\$.)5%!!%6CJ=D559=K!4C3BD?<4!F3@F:@396C=K!;55F?@=H

!

6\$%%7"*85)!
!

9: M3N5!=9;5<9=!F6EB@595!9D5!>B6E*5!:=C5!96!;5OC?57!9D5!P#:CC5<9Q!G:5=9?6<!
>?9D!39!@53#9!6@:9?6<!E59D6;=!3<;!D3N5!=9;5<9=!>C?95!;6><!RSS!E59D6;=H!!
TD5U!>?@!@!<!55;!96!:=5!9D5E!?!<!9D5!?!<N5=9?439?6<H

:: 23==!6:9!9D5!4C3BD!F3@F:@396C=N25C5?9D!=9;5<9=!D6>!96!:=5!9D5E7!U6:!
D3N5!<69!:=5;9D5!4C3BD?<4!F3@F:@396C=!O576C5K!3=J!U6:C!E39D!F63FD!76C!D5@B!?!<
?<9C6;:F?<4!9D5E!96!U6:C!:=9;5<9=H!!*5!:=C5!96!?!<F@:;5!?!<=9C:F9?6<=!6<!D6>!96!4C3BDK
@66J!39!9D5!93O@5!3<99D5!>?<;6>H

<: M3N5!=9;5<9>C?95!6:9!9D5!G:3;C39?F!76C!H!D3K!D3N5!9D5E!93J5!6:9!3!
D?4D@?4D95C!3<;!D?4D@?4D9!9D5!;?=FC?E?<3<9H!!M3N5!9D5E!>C?95!9D?!=5G:39?6<!39!
67!9D5!>6CJ=D559!3<;!95@!@!9D5E!9D39!>5!3C5!46?<4!96!?!<N5=9?4995!9W=!9?@?9U!?!<
76@!@6>?<4!@5==6<H

=: %3@J!9D5!=9;5<9=!9DC6:4D!5F9?6<!1!3=!M5@B!9D5E!96!4C3BDK!:=6@N5!3<;!
5N3@:395!9D5!;?=FC?E?<3<9!76C!9D5!7?C!P!D5G!3976<@!O5!:=?<4!9D5!4C3BD?<4!
F3@F:@396C!96!4C3BD!9D5E!9DC6:4D!3@!@!<5F5==3CU!:=95B!C76C!K3!F!D5!;6!
9D?>K!93J5!3!B?5F5!67!FD3C9!B3B5C!3<;!9:C!?!9!D6C?X6<93@!@UH!!(6!9D5!>6CJ!6<!9D?>!
3<;!B:9!9!6<!;?=B@3UH

>: Y<F5!5F9?6<!1!?!F6EB@595K!D3N5!=9;5<9=!F6EB@595!5F9?6<!8!3<;!5F9?6<!?!B3?C=H
R=!9;5<9=!3C5!7?<?>D?<4K!:=5@5E9!96EB@3F5!9D5?C!>6CJ!6<!9D5!FD3C9!B3B5CH!!
2@3F5!9D5=5!6<!;?=B@3UK!<5A9!96!9D5!7?C=9!B6=95C!67!5F9?6<!1H!!

?: Y<F5!3@!@!9DC55!:=5F9?6<=!3C5!F6EB@595K!FD3C9!B3B5CK!D3<4!9D5!D!U?;5
=?;5!3<;!E6N5!6<!96!5F9?6<!0H!!#6EB@595!9D5!:=EE3CU!G:5>925!E575CC?<4!96!
9D5!B6=95C=H!M5@B!:=9;5<9=!96!F6EB3C5!3<;!F6<9C3=9!9D5!4C3BD=!67!53FD!7:<F9?6<H!
R@=6K!3=J!:=9;5<9=!96!9D?<J!3O6:9!D6>!9D5!N3@:5!67!9D5!;?=FC?E?<3<9!7?9=!?!<96!9D5!
G:3;C39?F!76CE:@3H!!R=J!9D5E!96!9D?<J!3O6:9!D6>!9D?>=!C5@395!96!9D5!<:EO5C
=6@:9?6<=!9D5U!76<;!?!<!53FD!23C9!*H!!R=J!9D5E!96!;?=F!:=!D6>!9D5U!9D?<J!9D5!
;?=FC?E?<3<9!F6:@;!O5!D5@B7:@!>D5!<=6@N?<4!G:3;C39?F!5G:39?6<H!
?<95CF5B9=!3=!C669=K!:=6@:9?6<=!3<;!X5C6=!?!<95CFD3<453O@U!3<;!O5!:=C5!96!5AB@3?
'5F9?6<!F6<93?<=!3!;6:O@5!C669H,

@: Y<F5!3@!@!G:5=9?6<=!D3N5!O55<!3<=>5C5;K!3=J!:=9;5<9=!7!9D5U!9D?<J!9D39!9D?>!
?<76CE39?6<!F6:@;!D5@B!9D5E!96!F6EB@3F5!9D5?C!>9?F=!67!9D5!4C3BD!67!3!
G:3;C39?F!5G:39?6<!3<;!9D5!=6@:9?6<=!67!3!G:3;C39?F!5G:39?6<H!
2345!0!96!D5@B!?!@!:=9C395!9D5!9?@?9U!67!9D5!;?=FC?E?<3<9H!!

!

Section 1 Part A: Graph!

Part B: Solve any way you choose.

- ✎ Using your graphing calculator, graph the quadratic equation.
- ✎ Find the vertex and x-intercepts and sketch the graph as you see it on your graphing calculator.

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

Graph $y = x^2 - x - 6$

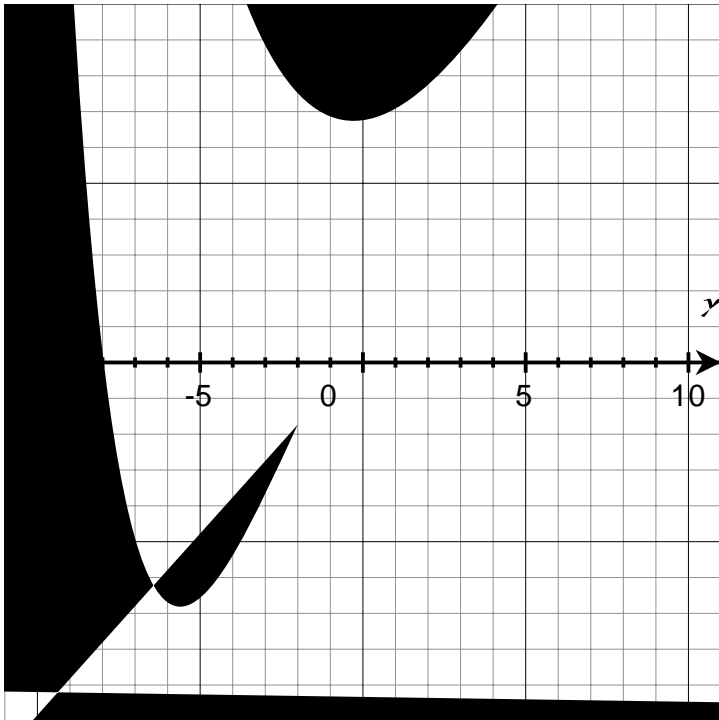
How many x-intercepts do you see? _____

What are the x-intercepts? (Write them as ordered pairs!)

Section 2 Part A: Graph!

- Using your graphing calculator, graph the quadratic equation.
- Find the vertex and x-intercepts and sketch the graph as you see it on your graphing calculator.

Graph $y = x^2 + 10x + 25$



How many x-intercepts do you see? _____

What are the x-intercepts? (Write them as ordered pairs!)

Part B: Solve any way you choose.

$$0 = x^2 + 10x + 25$$

How many solutions?

The solutions are (This has a special name!)

Look back—What do you notice?

Part C: Value of the Discriminant

- Identify a, b, and c and calculate the discriminant.
- Give the value of the discriminant and state whether it is positive, negative or zero

$$y = x^2 + 10x + 25$$

a= b= c=

The value of the discriminant is:

It is _____

(Positive, negative or zero.)

Section 3 Part A: Graph!

- ✖ Using your graphing calculator, graph the quadratic equation.
- ✖ Find the vertex and x-intercepts and sketch the graph as you see it on your graphing calculator.

Graph $y = x^2 - 4x + 8$

Part B: Solve any way you choose.

$$0 = x^2 - 4x + 8$$

Part C: Value of the Discriminant

- ✖ Identify a, b and c and calculate the discriminant.
- ✖ Give the value of the discriminant and state whether it is positive, negative or zero

y

How many solutions?

The solutions are:

How many x-intercepts do you see? _____

Look back! What do you notice?

What are the x-intercepts? (Write them as ordered pairs!)

!

Section 4 Summary and problems! Answer the questions below. Look back at the previous pages if you need help!

Consider $y = x^2 - x - 6$ (Section 1)	Consider $y = x^2 + 10x + 25$ (Section 2)	Consider $y = x^2 - 4x + 8$ (Section 3)
When the discriminant was _____, there were _____ solutions and _____ x-intercepts.	When the discriminant was _____, there was _____ solution and _____ x-intercept.	When the discriminant was _____, there were _____ solutions and _____ x-intercepts.

¥ How does finding the value of the discriminant help us to determine the number of solutions to a quadratic equation?

¥ Use the discriminant to answer the questions below. Keep in mind that x-intercepts are also called solutions, roots and zeros.

1. Determine the nature and the number of solutions for the quadratic equation $0 = x^2 + 12x + 11$

!