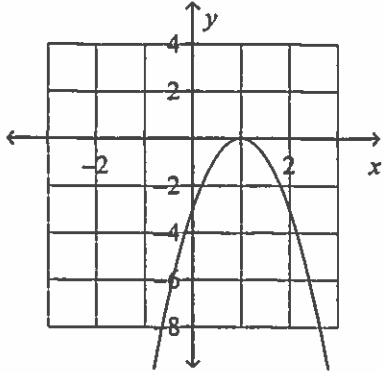


Chapter 10 pt 2 Practice Test (Sections 10.6-10.7)

Multiple Choice

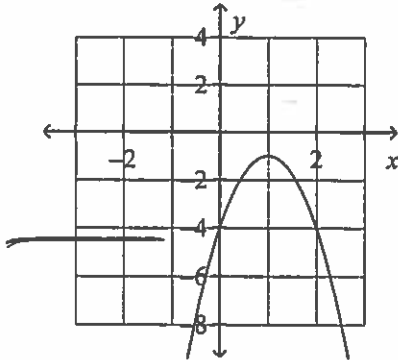
Identify the choice that best completes the statement or answers the question.

- C 1. For which discriminant is the graph possible?



- a. $b^2 - 4ac = -4$ b. $b^2 - 4ac = 3$ c. $b^2 - 4ac = 0$

- A 2. For which discriminant is the graph possible?



- a. $b^2 - 4ac = -12$ b. $b^2 - 4ac = 0$ c. $b^2 - 4ac = 2$

- C 3. Use the discriminant to find the number of solutions for the equation. $x^2 - 10x + 25 = 0$
(YOU DO NOT HAVE TO SOLVE.)

- a. 2 b. 0

c. 1 $(-10)^2 - 4(1)(25)$
 $100 - 100 = 0$ 1 root

- C 4. Use the discriminant to find the number of solutions for the equation. $x^2 + 13 = 0$
(YOU DO NOT HAVE TO SOLVE.)

- a. 1 b. 2

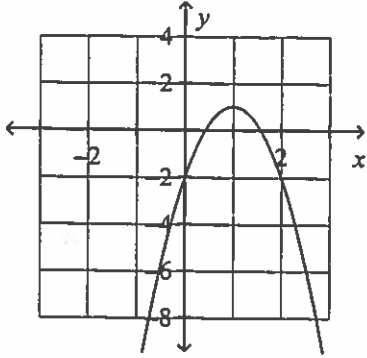
c. 0 $x^2 + 0x + 13 = 0$

$(0)^2 - 4(1)(13)$
 -52 no roots

Name: _____

A

5. For which discriminant is the graph possible?



a. $b^2 - 4ac = 0$

b. $b^2 - 4ac = -6$

c. $b^2 - 4ac = 4$

6. What is the equation for the axis of symmetry?

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

7. What is the expression for evaluating the discriminant?

$$b^2 - 4ac$$

8. What is the Quadratic Formula?

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

9. Use any method to solve the equation. $x^2 + 10x + 24 = 0$

Factor: $(x+4)(x+6) = 0$

$x+4=0$	$x+6=0$
$\frac{-4}{-4}$	$\frac{-6}{-6}$
$x = -4$	$x = -6$

$$x = -4$$

$$x = -6$$

10. Use any method to solve the equation. $2x^2 + 2x - 4 = 0$

GCF: $\frac{2}{2} \frac{x^2 + x - 2}{2} = 0$

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

Factor: $(x+2)(x-1) = 0$

$x+2=0$	$x-1=0$
$\frac{-2}{-2}$	$\frac{+1}{+1}$
$x = -2$	$x = 1$

$$x = -2$$

$$x = 1$$

11. Use the Quadratic Formula to solve the equation. $6y^2 - 3y = 9$

$a=6$
 $b=-3$
 $c=-9$

$6y^2 - 3y - 9 = 0$

$$y = \frac{-(-3) \pm \sqrt{(-3)^2 - 4(6)(-9)}}{2(6)}$$

$$= \frac{3 \pm \sqrt{9 + 216}}{12} = \frac{3 \pm \sqrt{225}}{12} = \frac{3 \pm 15}{12}$$

$x = \frac{1.5}{1}$
 $x = -1$

$\frac{3+15}{12} = \frac{18}{12} = 1.5$
 $\frac{3-15}{12} = \frac{-12}{12} = -1$

Solve the equation. Use any method you wish. Round to the nearest hundredth if necessary.

12. $x^2 + 3x - 5 = 0$ Quad. Formula - doesn't factor

$a=1$
 $b=3$
 $c=-5$

$$x = \frac{-3 \pm \sqrt{(3)^2 - 4(1)(-5)}}{2(1)} = \frac{-3 \pm \sqrt{9 + 20}}{2}$$

$x = 1.20$
 $x = -4.20$

$= \frac{-3 \pm \sqrt{29}}{2} = \frac{-3 + 5.39}{2}$

$\frac{-3 + 5.39}{2} = \frac{2.39}{2} = 1.195 \approx 1.20$
 $\frac{-3 - 5.39}{2} = \frac{-8.39}{2} = -4.195 \approx -4.20$

13. $x^2 - 4x = 5$

$-5 - 5$

$$x^2 - 4x - 5 = 0$$

Factor

$$(x-5)(x+1) = 0$$

$x-5=0$ $x+1=0$
 $+5 \quad +5$ $-1 \quad -1$

$x=5$ $x=-1$

$x = 5$
 $x = -1$

14. Solve the equation using the Quadratic Formula.

$a=1$
 $b=0$
 $c=-36$

$x^2 + 5 = 41$
 $-41 -41$

$$x^2 - 0x - 36 = 0$$

$$x = \frac{-0 \pm \sqrt{(0)^2 - 4(1)(-36)}}{2(1)}$$

$x = +6$
 $x = -6$

$= \frac{0 \pm \sqrt{0 + 144}}{2} = \frac{\pm \sqrt{144}}{2}$

$= \frac{\pm 12}{2}$

$\frac{+12}{2} = +6$
 $\frac{-12}{2} = -6$

15. Solve the equation using whatever method you wish.

$$\frac{x^2}{4} = 36 \quad \text{Square roots}$$

$$\sqrt{x^2} = \sqrt{144}$$

$$x = \pm 12$$

$$x = +3$$

$$x = -3$$

downward
axis = -5
narrow

B

16. Describe at least 3 details (how it opens, width, axis, vertex, roots, etc.) about the function, $f(x) = -5x^2 + 20x - 10$.

- a.) opens up, wide, axis of symmetry of 2, vertex of (2, 10), 1 root
- b.) opens down, skinny, axis of symmetry of 2, vertex of (2, 10), 2 roots
- c.) opens down, wide, axis of symmetry of 10, vertex of (10, 2), no roots

$$\text{AOS: } x = \frac{-b}{2a} = \frac{-20}{2(-5)}$$

$$= \frac{-20}{-10} = 2$$

Simplify the radical expression.

17. $\sqrt{160} = \sqrt{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 5}$

16 10
4 5
2 2 2 2

$$2 \cdot 2 \cdot \sqrt{2 \cdot 5}$$

$$4\sqrt{10}$$

$x = 2$

$$V(2, 10)$$

$$y = -5(2)^2 + 20(2) - 10$$

$$= -20 + 40 - 10$$

$$y = 10$$

18. $\sqrt{144} = 12$

Discriminant:

$$b^2 - 4ac$$

$$(20)^2 - 4(-5)(-10)$$

$$400 - 200$$

$$+200 \quad * 2 \text{ roots}$$

19. $\sqrt{250} = \sqrt{2 \cdot 5 \cdot 5 \cdot 5}$

25 10
5 5 2

$$5\sqrt{2 \cdot 5}$$

$$5\sqrt{10}$$

20. Use the Quadratic Formula to solve the equation. Put your answer in simplest radical form.

$$7x^2 - 16x - 28 = 0$$

$$x = \frac{-(-16) \pm \sqrt{(-16)^2 - 4(7)(-28)}}{2(7)}$$

$$= \frac{16 \pm \sqrt{256 + 784}}{14} = \frac{16 \pm \sqrt{1040}}{14}$$

$$= \frac{16 \pm 4\sqrt{65}}{14}$$

$$= \frac{8 \pm 2\sqrt{65}}{7}$$

~~$$x = \frac{-16 \pm \sqrt{1040}}{14}$$~~

1040

10 104
2 5 2 52
2 26
2 13

$$\sqrt{2 \cdot 2 \cdot 2 \cdot 2 \cdot 5 \cdot 13}$$

$$2 \cdot 2 \sqrt{5 \cdot 13} \rightarrow 4\sqrt{65}$$

$a = 7$
 $b = -16$
 $c = -28$