Math 2200   **Chapter 4 Review**   **Name: _____**
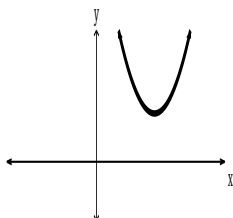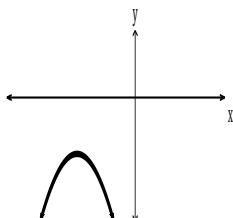
Part I: **Multiple Choice. Write the correct answer in the space provided at the end of this section.**

1.   Which is a quadratic function with a positive discriminant?
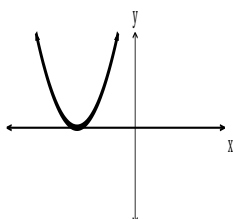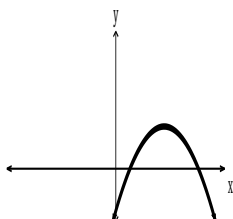
(A)

(B)

(C)

(D)

2.   Which quadratic function has zeros of $\frac{3}{2}$ and -5 ?

(A) $f(x) = 2x^2 - 7x - 15$

(B) $f(x) = 2x^2 - 13x + 15$

(C) $f(x) = 2x^2 + 7x - 15$

(D) $f(x) = 2x^2 + 13x - 15$

3. Theresa's incorrect solution to the equation $4x^2 - 7x - 3 = 0$ is shown. In which step does the **first** error occur?

Step 1 $\quad x = \dfrac{7 \pm \sqrt{(-7)^2 - (4)(4)(-3)}}{2(4)}$

Step 2 $\quad x = \dfrac{7 \pm \sqrt{49 - 48}}{8}$

Step 3 $\quad x = \dfrac{7 \pm \sqrt{1}}{8}$

Step 4 $\quad x = 1 \,, x = \dfrac{3}{4}$

(A)   1
(B)   2
(C)   3
(D)   4

4. What are the zeros of $y = (x - 2)(3x - 5)$?

(A) $\quad -2, -\dfrac{5}{3}$

(B) $\quad 0, 10$

(C) $\quad \dfrac{5}{3}, 2$

(D) $\quad 2, 5$

5. Which describes the quadratic function that has vertex $(-9, 3)$ and passes through the point $(-4, -2)$?

(A)   The axis of symmetry is $x = -9$ and the discriminant is negative.

(B)   The axis of symmetry is $x = -9$ and the discriminant is positive.

(C)   The axis of symmetry is $x = 9$ and the discriminant is negative.

(D)   The axis of symmetry is $x = 9$ and the discriminant is positive.

6.   Solve: $2x(x-3)+5(x-3)=0$

(A) $x=-3,\quad x=-\dfrac{5}{2}$

(B) $x=-3,\quad x=\dfrac{5}{2}$

(C) $x=3,\quad x=-\dfrac{5}{2}$

(D) $x=3,\quad x=\dfrac{5}{2}$

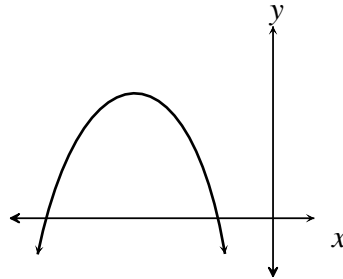7.   The graph of a quadratic function $f(x)$ is shown. What best describes the discriminant for $f(x)=0$?

(A) $D<0$

(B) $D=0$

(C) $D\geq 0$

(D) $D>0$

8.   If $x=5$ is one root of the equation $x^2+kx+30=0$, what is the value of 'k'?

(A) -11

(B) -5

(C) 5

(D) 11

9.   Which equation would be used to determine two consecutive odd integers whose product is 143?

(A) $x(x+1)=143$

(B) $x(x+2)=143$

(C) $x(2x+1)=143$
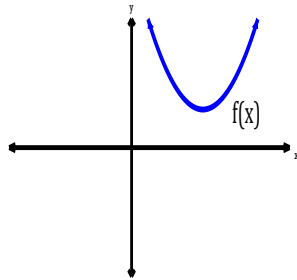
(D) $(x+1)(x+2)=143$

10. The graph of a quadratic function is shown. What is a possible value for the discriminant of the related equation $f(x) = 0$?

(A) -1

(B) 0

(C) $\sqrt{2}$

(D) $\dfrac{3}{2}$

11. What are the zeroes of the function $f(x) = 2x^2 - x - 3$?

(A) $-\dfrac{3}{2}, 1$

(B) $-\dfrac{2}{3}, 1$

(C) $\dfrac{2}{3}, -1$

(D) $\dfrac{3}{2}, -1$

12. What value of n that will make the polynomial $36x^2 + nb + 16$ a perfect square trinomial?

(A) 4

(B) 8

(C) 24

(D) 48

Answers to multiple choice.

1.___   2.___   3.___   4.___   5.___

6.___   7.___   8.___   9.___   10.___

11.___   12.___

Part II: **Constructed Response. Answer each question in the space provided.**

13.   Algebraically determine the **EXACT** roots, in simplest form, for:

$$2x(3x - 1) = 5$$

14. Algebraically determine the **EXACT** roots, in simplest form:

$$16(x^2 - 1) = 24(2x + 1)$$

15. Algebraically determine the **EXACT** roots in simplest form for the equation:

$$5x(5x + 4) = -7$$

16. Algebraically determine, the **EXACT** roots, in simplest form, for:

$$\frac{-3}{x} = x + 2$$

17. A toy rocket is launched in the air from a launcher located 6 m above the ground. The rocket's path is described by $h(t) = -5t^2 + 18t + 6$ where $h(t)$ is the height of the rocket above the ground t seconds after launch. At what times is the rocket 15 metres in the air?

18. Find two consecutive whole numbers such that the sum of their squares is 265.

19. A toy rocket is launched in the air from a launcher located 6 m above the ground. The rocket's path is described by $h(t) = -5t^2 + 13t + 6$ where $h(t)$ is the height of the rocket above the ground t seconds after launch. How long is the rocket in the air?

20. The parking lot of a school is 40m by 50m. It is expanded by adding rectangular strips of equal widths, as shown in the diagram below. If the new parking lot has an area of 3575m², what is the width of the strip?

x

40m

50m   x
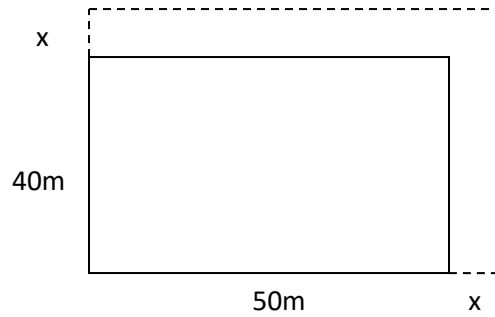
21. A ball is thrown from a balcony on a building and its path is represented by
The function $y = -5x^2 + 20x + 60$, where x is the distance, in meters, from the
building along the ground, and y is the height, in meters, above the ground. If the
parking lot extends 5 m from the building, will the ball land on the parking lot or
beyond?
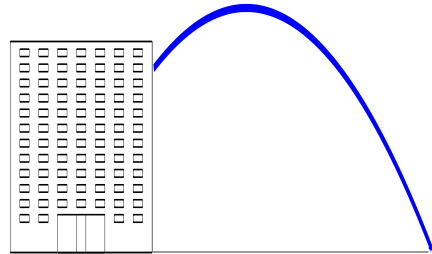
22. An arrow is fired from a building at an initial height of 22 metres and reaches a maximum height of 72 metres, 5 seconds after it is fired. Write a quadratic equation which models this situation use it to determine when the arrow hits the ground.