

Math-8 Exam #2

Name: _____

This exam is closed book and notes. You may use a calculator; however, no other electronics are allowed. Show all work; there is no credit for guessed answers. All answers should be in exact values, unless you are specifically asked for an approximate value.

- 1). Identify the following:

$$ax^2 + bx + c = 0$$

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

$$D = b^2 - 4ac$$

- 2). You own a candy and nut store. Peanuts sell for \$4.00 per lb and cashews sell for \$7.50 per lb. Unfortunately, the more expensive cashews are not selling very well, so you decide to make a peanut/cashew mix. You mix 10 lb of peanuts with 10 lb of cashews. How much should you charge per pound for the mix?

3). Solve for x by completing the square:

$$2x^2 - 5x - 3 = 0$$

4). Solve the same equation using the quadratic formula.

5). Using the results from the previous two problems, state a factorization for the original quadratic equation. You must use the previous results for full credit.

6). Solve the following:

a). Solve for x . State your answer both graphically and using setbuilder notation:

$$|2x - 5| - 2 = 4$$

b). Solve for x . State your answer graphically, using interval notation, and using interval notation.

$$|2x - 5| - 2 < 4$$

c). Solve for x . State your answer graphically, using interval notation, and using interval notation.

$$|2x - 5| - 2 \geq 4$$

- 7). We discussed in class the four possibilities of a discriminant and how they predict the number and type of solutions to the corresponding quadratic equation. List the four cases, including discriminant value, number of solutions, and type of solutions.

D	COUNT	TYPE
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

- 8). Solve for x ;

$$x^4 + 7x^2 - 18 = 0$$

9). Solve for x :

$$(x - 5)^{\frac{2}{3}} - 16 = 0$$

- 10). Solve for x , stating your answer in interval notation. A full credit answer includes the work that shows a graphical representation and a sign table.

$$\frac{x^2(x+2)(1-x)}{(3-x)^2(4+x)} \leq 0$$