Student: _____ **Date:** _____	**Instructor:** Joe Betters **Course:** Pre-Calculus Pre AP (Master Course)	**Assignment:** 3.5 Classwork

1. Solve the following inequality.

$2x^2 < 5x + 25$

Select the correct choice below and, if necessary, fill in the answer box.

- ○ **A.** The solution set is _____.
  (Type your answer in interval notation. Use integers or fractions for any numbers in the expression.)
- ○ **B.** There is no real solution.

ID: 3.5.15

2. Solve the following inequality.

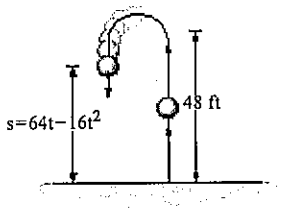
$15(x^2 - 1) > 16x$

Select the correct choice below and, if necessary, fill in the answer box.

- ○ **A.** The solution set is _____.
  (Type your answer in interval notation. Use integers or fractions for any numbers in the expression.)
- ○ **B.** There is no real solution.

ID: 3.5.21

3. A ball is thrown vertically upward with an initial velocity of 64 feet per second. The distance s (in feet) of the ball from the ground after t seconds is $s = 64t - 16t^2$.
(a) At what time t will the ball strike the ground?
(b) For what time t is the ball more than 48 feet above the ground?



(a) The ball will strike the ground when t is _____ seconds.

(b) The ball is more than 48 feet above the ground for the time t when _____ < t < _____.
(Simplify your answer.)

ID: 3.5.33

4. Suppose that the manufacturer of a gas clothes dryer has found that when the unit price is p dollars, the revenue R (in dollars) is $R(p) = -2p^2 + 4{,}000p$.

   (a) At what prices p is revenue zero?
   (b) For what range of prices will revenue exceed $400,000?

(a) At what prices p is revenue zero?

The revenue equals zero when p is $\$$ _____.
(Use a comma to separate answers, but do not use commas in any individual numbers.)

(b) For what range of prices will revenue exceed $400,000?

_____
(Type your answer in interval notation. Round to the nearest cent as needed.)

ID: 3.5.35

1. A. The solution set is $\left(-\frac{5}{2},5\right)$.

(Type your answer in interval notation. Use integers or fractions for any numbers in the expression.)

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2. A. The solution set is $\left(-\infty,-\frac{3}{5}\right)\cup\left(\frac{5}{3},\infty\right)$.

(Type your answer in interval notation. Use integers or fractions for any numbers in the expression.)

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3. 4

1

3

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4. 0,2000

(105.57,1894.43)

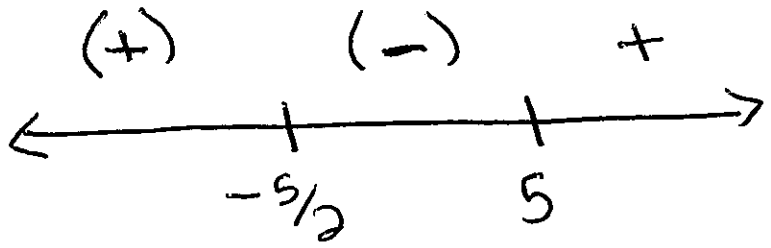
3.5 classwork

① $2x^2 < 5x + 25$

$2x^2 - 5x - 25 < 0$

$(2x + 5)(x - 5) < 0$ negative

critical points $x = -\frac{5}{2}$ $x = 5$



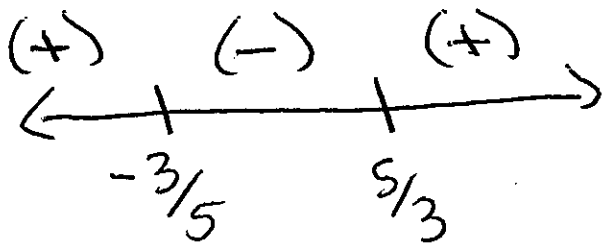
$\left(-\frac{5}{2}, 5\right)$

② $15(x^2 - 1) > 16x$

$15x^2 - 16x - 15 > 0$

$(5x + 3)(3x - 5) > 0$ positive

critical points $x = -\frac{3}{5}$ $x = \frac{5}{3}$



$\left(-\infty, -\frac{3}{5}\right) \cup \left(\frac{5}{3}, \infty\right)$

3.5 classwork continued

③ $s = -16t^2 + 64t$

s = distance in ft.
Initial velocity 64 ft/sec

$0 = -16t^2 + 64t$

$0 = -16t(t-4)$

$\boxed{t=0,\ t=4}$ 4 seconds

$48 = -16t^2 + 64t$

$16t^2 - 64t + 48 = 0$

$t^2 - 4t + 3 = 0$

$(t-3)(t-1) = 0$

$\boxed{t=1,\ t=3}$ $\boxed{1 < t < 3}$

time between 1 and 3 seconds the ball is above 48 ft above the ground

3.5 Classwork continued

④ $R(p) = -2p^2 + 4000p$

$0 = -2p^2 + 4000p$

$0 = -2p(p - 2000)$

$p = \$0$, $p = \$2000$ revenue is zero at \$0 and \$2000

$400{,}000 = -2p^2 + 4000p$

$2p^2 - 4000p + 400000 = 0$

$p^2 - 2000p + 200000 = 0$

$$p = \frac{-(-2000) \pm \sqrt{(-2000)^2 - 4(1)(200000)}}{2(1)}$$

$p = \$105.57$

$p = \$1894.43$