STUDY GUIDE for Algebra 1st Semester End of Course Exam

This study guide is designed to help prepare you for the end of course exam. It contains a variety of questions similar to the problems you will find on the exam. Below each question is a page number, chapter and section number, or web code which might be helpful for that particular content. Web codes look like bae-xxxx and are entered in at PHSCHOOL.COM. They contain links to videos which might also be helpful. When in doubt, ask your teacher.

If you are unable to complete a problem entirely on your own it is highly recommended that you practice several more problems out of the book until you are able to do so.

This study guide contains only a sample of the end of course exam. The actual exam consists of 50 multiple choice questions.

1) $49^{\frac{1}{2}} - 5^0 =$

Page 329, 492

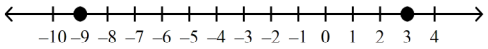
2) Write the expression below using positive exponents.
$\left(b^3\right)^4 \cdot b^2$

Page 345, bae-0775

3) $-a^0 + 3^3 - \sqrt{81} =$

Page 329; bae-0701

4) The number line below shows the solution set for which of the following equations?



a. $-|2x + 6| = 12$
b. $|2x - 6| = 12$
c. $|2x + 6| = 12$
d. $-|2x - 6| = 12$

Pg.159-160; bae-0306

5) What is the solution set of the inequality $|x - 3| < 7$?

(Your answer will have the format: __< x < __ or something similar.)
Pg 159-160; bae-0306

6) What is the solution set of the inequality $\frac{1}{2}|x| + 6 < 10$?

Page 159-160; bae-0306

7) Solve for x: $\frac{2}{3}(6x + 9) = 18$

Page 77; bae-0202

8) Which inequality is equivalent to $-12x + 6 < -4x + 22$?

a. $-8x > 16$
b. $-16x < 28$
c. $-8x < 16$
d. $8x < 16$

Page 143; bae-0304

9) Which inequality can be used to solve the following problem?

Mike rented a car for \$150 per week plus \$0.25 per mile. How far did Mike travel if he spent at most \$250

a. $150 + 0.25m \leq 250$
b. $150 + 0.25m \geq 250$
c. $150 + 250 \leq 0.25m$
d. $250 + 0.25m \leq 150$

Page 143-144; bae-0304

10) The selling price of a certain DVD is \$10 more than the price the store paid the manufacturing company. If the selling price is \$30, which equation can be used to find the price, p, the store paid the manufacturing company?

a. $10 - p = 30$
b. $p + 30 = 10$
c. $p - 10 = 30$
d. $p + 10 = 30$

page 4; bae-0101

11) A company uses an equation to determine shipping costs for their orders. In the equation $s = \$2.50p + \$1.25$, s represents the total shipping cost for an order that weighs p pounds. Find the cost for a shipping weight of 5 pounds.

Page 10, example 2

12) The first of two movies lasted 10 minutes less than two times as long as the second. Together the two movies lasted 145 minutes. How long was the second movie?

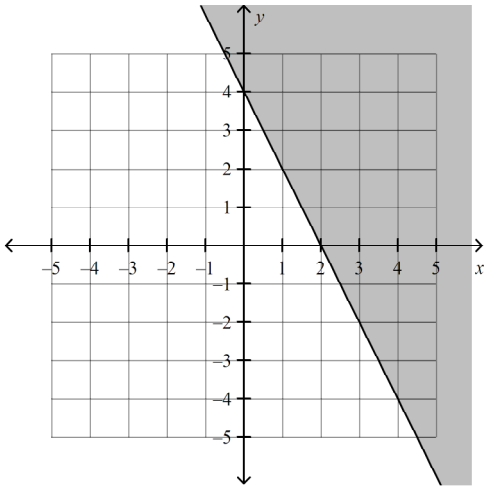
Page 4, Page 100 (example 1); bae-0775

13) Sketch a graph of the equation $2y + 6x = 12$.

Page 246; bae-0503

14) Give an inequality for shown the graph below.

(hint: Use the slope-intercept form to find an equation of the boundary line, then change it to the proper inequality)
Page 302; bae-0605



15) Which of the following points lies on the line defined by $y - 2x = 3$?

a. (–3, 3)
b. (3,9)
c. (2, -1)
d. (0, –1)

Page 239; bae-0502

16) What is the slope-intercept form of the equation of the line that has a slope of $-\frac{2}{3}$ and passes through the point (2, 0)?

Hint: (use the point-slope form first, then rewrite it into slope-intercept form)
Page 239, page 252
bae-0502; bae-0504

17) What is the equation, in slope-intercept form, of the line that has a slope of 4 and passes through the point (-3,8)?

Hint: (use the point-slope form first, then rewrite it into slope-intercept form)
Page 239, page 252
bae-0502; bae-0504

18) What is the standard form of the equation of the line that has a slope of –2 and passes through the point (–3, –4)?

19) In order for two lines to be parallel to each other, what must be true about their slopes?

What must be true about the slopes of perpendicular slopes?

Page 259; bae-0775, bae-0505

20) What relationship do the graphs of the equations $2y = 4x + 7$ and $x + 2y = 7$ have in regards to each other?

Test Hint (There will be several problems on the final where you will need to be proficient at finding the slope of a line from an equation or from a graph, and being able to find the corresponding slopes of a parallel or perpendicular line. Study chapter 5 section 4 well!)

a. the two lines are parallel to each other
b. the two lines never intersect
c. the two lines are perpendicular to each other
d. the two lines are not parallel or perpendicular to each other

page 247,259,260; bae-0505

21) For which of the systems is (3,-2) a solution?

I. $\begin{cases} -2x - 2y = -2 \\ x + 3y = -3 \end{cases}$ II. $\begin{cases} 4x + 6y = 3 \\ -5x + y = -17 \end{cases}$ III. $\begin{cases} x - 2y = 7 \\ 3x + 3y = 15 \end{cases}$

a. I only
b. I and III only
c. III only
d. I and II only

Page 276; bae-0601

22) Which of the following describes this system of equations?

$$\begin{cases} x + 2y = -5 \\ 4x - y = 7 \end{cases}$$

a. no solutions
b. one solution
c. two solutions
d. infinitely many solutions

Page 278

23) Graph the solution to this system of inequalities.

$$\begin{cases} x + 2y \leq 10 \\ 3x + 2y > 12 \end{cases}$$

Page 309; bae-0775; bae-0606
Note: There are several problems similar to this on the test. Practice these! See page 312-13 for more problems.

24) The area of a rectangle is $20x^4y^3$ square units. One side of the rectangle is $4x^2y$ units long. How long is the other side of the rectangle?

Page 345; bae-0704; bae-0775

25) Find the difference of the expression below.
$(-5x^2 + 2x + 4) - (-4x + 3)$

Page 370; bae-0801

26) Simplify: $(3y + 2x)(5x - 4y) =$

Page 381; bae-0775

27) Two cars were traveling in the same direction on the same course. The first car was traveling 60 mph and the second car was traveling 50 mph. After how long were the two cars 40 miles apart?

Page 101 (Example 3); bae-0205; bae-0775

28) How many pounds of nuts costing \$0.65 per pound must be added to 25 pounds of nuts costing \$0.50 per pound to create a mixture that would cost \$0.60 per pound?

Page 110

29) Drew left his house traveling at a rate of 30 mph. A half hour later, Carey left Drew's house traveling at a rate of 40 mph. How long did it take Carey to catch up with Drew?

Page 102 (example 3); bae-0775

30) Marcus can paint a garage in 4 hours. Gina can paint the same garage in 2 hours. How long will it take Marcus and Gina to paint the garage if they work together?

Page 81 #68