

Algebra 1B Spring 2016 Practice Benchmarks Exam

1) Solve the system of equation by substitution

$$\begin{cases} -3x - y = -13 \\ x + 2y = 6 \end{cases}$$

2) Solve the system of equation by elimination

$$\begin{cases} -2x - 7y = 22 \\ -7x - 5y = -1 \end{cases}$$

3) Factor the trinomial by using the big "X"

$$n^2 + 4n - 12$$

4) Solve by factoring the trinomial by using the big "X"

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

5) Write the equations that you would need to solve this problem, and then solve.

*The admission fee at a small fair is \$1.50 for children and \$4.00 for adults. On a certain day, 2200 people enter the fair and \$5050 is collected. How many children and how many adults attended?*

6) Solve by completing the square

$$8x = 4x^2 - 1$$

7) Solve the equation  $(x + 5)^2 = 64$

8) Solve the equation  $(x - \frac{1}{4})^2 = 25$

9) Factor by grouping

$$192x^2y + 72x^3 - 24rxy - 9rx^2$$

10) Solve by grouping

$$105ab - 90a - 21b + 18 = 0$$

11) Solve by using the quadratic formula

$$4x^2 + 7x - 15 = 0$$

12) Solve by using the quadratic formula

$$x^2 = -x + 1$$

13) Describe the graph of the functions given without graphing them (increasing/decreasing; narrow/wide/regular; y-intercept):

a)  $y = \frac{1}{4}(3)^x + 9$       b)  $y = -\frac{3}{5}(7)^x$       c)  $y = 9\left(\frac{4}{7}\right)^x - 3$

14) You have inherited land that was purchased for \$30,000 in 1960. The value of the land increased by approximately 5% per year. What is the approximate value of the land in the year 2011?

15) During normal breathing, about 12% of the air in the lungs is replaced after one breath. Write an exponential decay model for the amount of the original air left in the lungs if the initial amount of air in the lungs is 500mL. How much of the original air is present after 24 breaths?

1)  $x = \underline{\hspace{2cm}}$   $y = \underline{\hspace{2cm}}$

2)  $x = \underline{\hspace{2cm}}$   $y = \underline{\hspace{2cm}}$

3)  $\underline{\hspace{4cm}}$

4)  $\underline{\hspace{4cm}}$

5) Equations:

$\underline{\hspace{4cm}}$

$\underline{\hspace{4cm}}$

Number of children:  $\underline{\hspace{2cm}}$

Number of adults:  $\underline{\hspace{2cm}}$

6)  $\underline{\hspace{4cm}}$

7)  $\underline{\hspace{4cm}}$

8)  $\underline{\hspace{4cm}}$

9)  $\underline{\hspace{4cm}}$

10)  $a = \underline{\hspace{2cm}}$   $b = \underline{\hspace{2cm}}$

11)  $\underline{\hspace{4cm}}$

12)  $\underline{\hspace{4cm}}$

13a)  $\underline{\hspace{4cm}}$

$\underline{\hspace{4cm}}$

y-intercept:  $\underline{\hspace{2cm}}$

13b)  $\underline{\hspace{4cm}}$

$\underline{\hspace{4cm}}$

y-intercept:  $\underline{\hspace{2cm}}$

13c)  $\underline{\hspace{4cm}}$

$\underline{\hspace{4cm}}$

y-intercept:  $\underline{\hspace{2cm}}$

14) Equation:

$\underline{\hspace{4cm}}$

Value in 2011:  $\underline{\hspace{2cm}}$

15) Equation:

$\underline{\hspace{4cm}}$

Air left after 24 breaths:  $\underline{\hspace{2cm}}$