# My Free Tutor's Algebra 1 Qualification Test

**Applicant Name** _____

Below are 25 multiple choice test questions. Each question includes the subject matter description and its location in the Pearson/Prentice Hall Algebra 1 textbook.

In the appendix at the end of the test, there is a link to the textbook's instructional video and subject matter quiz for each question. For most questions, a link to the Khan Academy instructional video(s) is included. This can be a resource to refresh your Algebra skills.

**Please add your answers to the space provided after each question, save the test with your answers (adding your name to the saved document's description), and email the completed document as an attachment to,** mailto: **Anabella_myfreetutor@rsvpmc.org We will contact you as soon as we receive all your enrollment documents.**

Thank you very much for your time and volunteering to be a tutor.

**Question 1** Multiplication Properties of Exponents, raising a Product to a Power

Simplify the expression below:

$(-5g^5h^6)^2(g^4h^2)^4$

a. $25g^{26}h^{20}$ b. $\frac{g^{26}h^{20}}{25}$ c. $-25g^{26}h^{20}$ d. $25g^{15}h^{14}$

Your answer ___

**Question 2** Median, Median, and Range

Over the first five years of owning her car, Gina drove about 12,700 miles the first year, 15,478 miles the second year, 12,675 the third year, 11,850 the fourth year, and 13,075 the fifth year.

**a.** Find the mean, median, and mode of this data.

**b.** Explain which measure of central tendency will best predict how many miles Gina will drive in the sixth year.

a. mean= 12,700; median= 13,156; no mode; the mean is the best choice because it is representative of the entire data set.

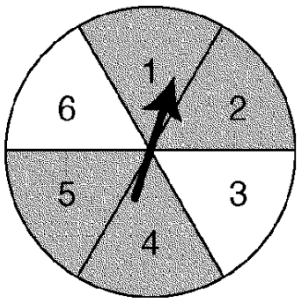
b. mean= 13,156; median= 12,700; mode= 3,628; the median is the best choice because it is not skewed by the high outlier.

c. mean= 13,156; median= 12,700; no mode; the mean is the best choice because it is representative of the entire data set.

d. mean= 13,156; median= 12,700; no mode; the median is the best choice because it is not skewed by the high outlier.

Your answer ___

**Question 3** Probability, Theoretical and Experimental Probability




. Find $P$(even and not shaded) in the spinner above.

a. $\frac{1}{6}$ b. $\frac{1}{3}$ c. 0 d. $\frac{5}{6}$

Your answer ___

**Question 4** Solving Two-Step Equations

. A customer went to a garden shop and bought some potting soil for $17.50 and 4 shrubs. The total bill was $53.50. Write and solve an equation to find the price of each shrub.

a. $4p + \$17.50 = \$53.50$; $p = \$9.00$

b. $4(p + \$17.50) = \$53.50$; $p = \$4.00$

c. $4p + 17.5p = \$53.50$; $p = \$2.49$

d. $4p + \$17.50 = \$53.50$; $p = \$11.25$

Your answer ___

**Question 5** Percent of Change

The circulation of a newsletter decreased from 5200 to 3140. Find the percent of decrease in circulation to the nearest percent.

a. 66% b. 40% c. 166% d. 6%

Your answer ___

**Question 6** Identifying Solutions of Inequalities, Inequalities and Their Graphs

. Which number is the solution to the inequality?

$3x - 15 \geq 3$

a. $-\frac{9}{11}$ b. 5 c. $\frac{6}{11}$ d. 6

Your answer ___

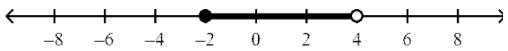
**Question 7** Solving Compound Inequalities Containing And

Solve the inequality then graph the solution.

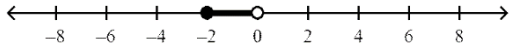
$-8 \leq 2x - 4 < 4$

a. $0 \leq x < 6$

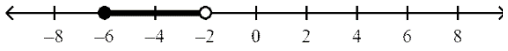

c. $-2 \leq x < 4$




b. $-2 \leq x < 0$




d. $-6 \leq x < -2$




Your answer ___

**Question 8** Solving Multi-Step Inequalities

Solve $-5x - 7 < 28$

a. $x > -7$ b. $x < -7$ c. $x > \frac{21}{5}$ d. $x < -\frac{21}{5}$

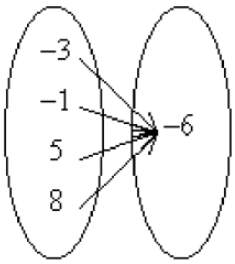
Your answer ___

**Question 9** Identifying Relations and Functions

Identify the mapping diagram that represents the relation and determine whether the relation is a function.

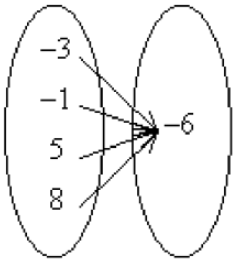
$\{(-3,-6),(-1,-6),(5,-6),(8,-6)\}$

a.



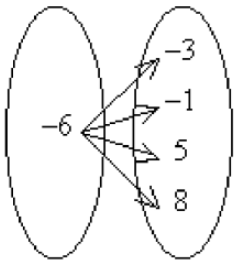

The relation is not a function.

b.



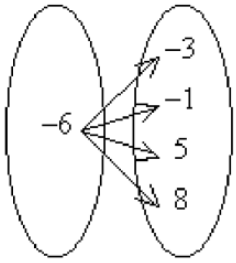

The relation is a function.

c.




The relation is a function.

d.



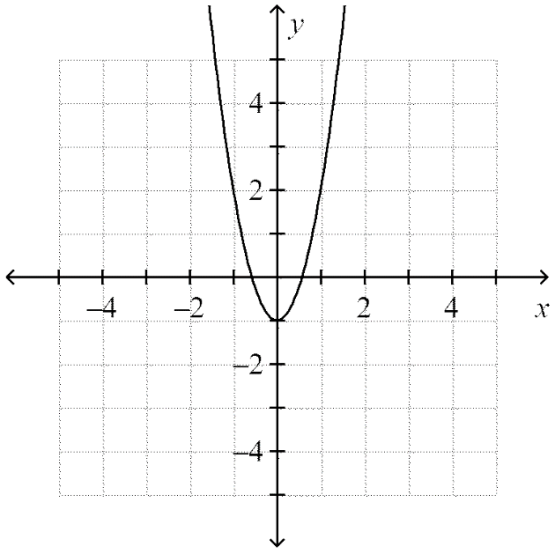

The relation is not a function.

Your answer ___

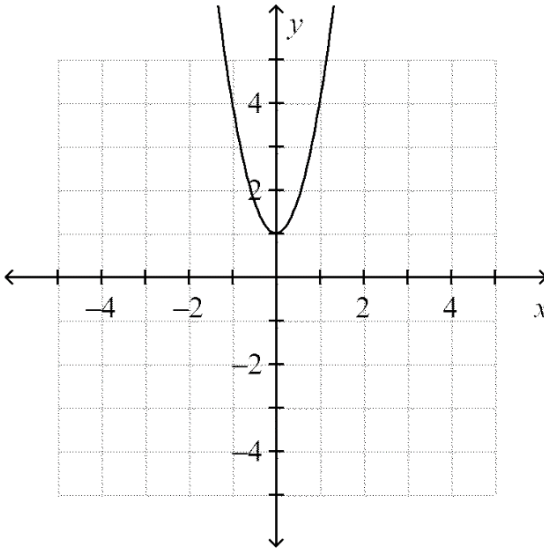
**Question 10** Modeling Functions

Graph $y = -3x^2 - 1$

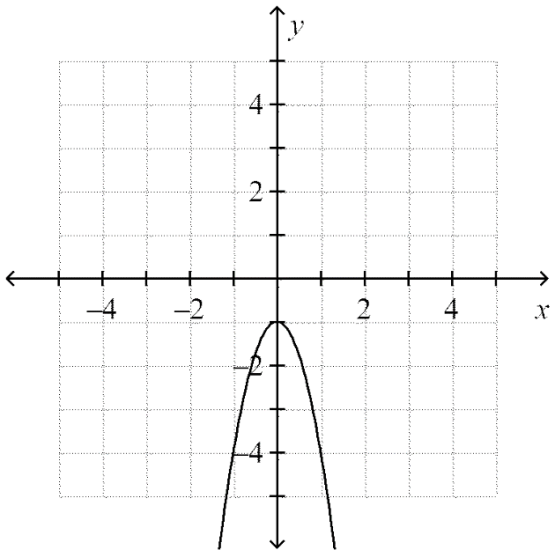
a.



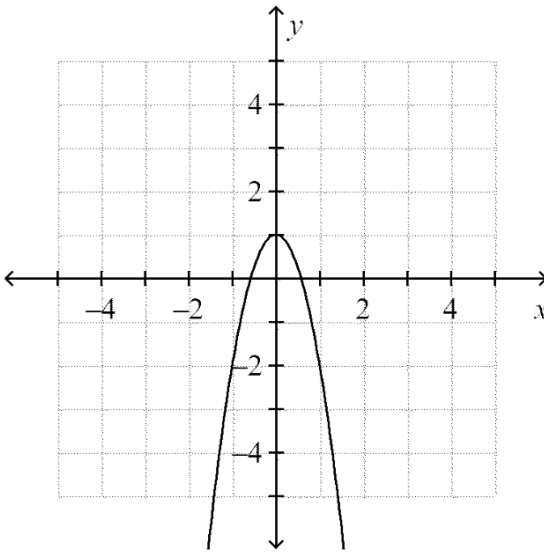

c.




b.




d.




Your answer ___

**Question 11** Writing a Function Rule

A zucchini plant in Darnell's garden was 10 centimeters tall when it was first planted. Since then, it has grown approximately 0.5 centimeter per day.

**a.** Write a rule to describe the function.

**b.** After how many days will the zucchini plant be 0.185 meter tall?

a. $h(d) = 0.5d + 10$; 17 days

b. $h(d) = 10d + 0.5$; 1.1 days

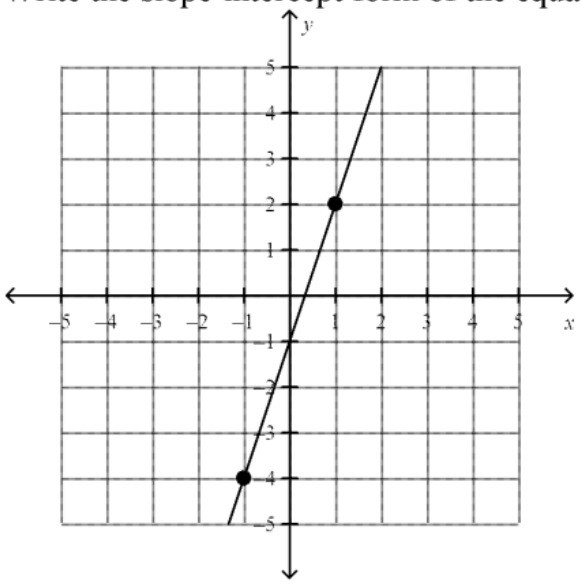
c. $h(d) = \frac{d}{0.5} + 10$; 4 days

d. $h(d) = 0.5d$; 37 days

Your answer ___

**Question 12** Writing Linear Equations, Slope Intercept Form

. Write the slope-intercept form of the equation for the line.



a. $y = 3x - 1$

b. $y = -3x - 1$

c. $y = \frac{1}{3}x + 1$

d. $y = \frac{1}{3}x - 1$

Your answer ___

**Question 13** Writing Equations in Standard Form

Write an equation of a line that has the same slope as $2x - 5y = 12$ and the same $y$-intercept as $4y + 24 = 5x$.

a. $y = \frac{2}{5}x - 6$

b. $y = 6x - \frac{2}{5}$

c. $y = \frac{5}{2}x - 6$

d. $y = \frac{1}{6}x - \frac{5}{2}$

Your answer ___

**Question 14** Point-Slope Form and Writing Linear Equations

. Write an equation in point-slope form for the line through the given point with the given slope.
$(10, -9)$; $m = -2$

a. $y - 10 = -2(x + 9)$

b. $y - 9 = -2(x + 10)$

c. $y - 9 = -2(x - 10)$

d. $y + 9 = -2(x - 10)$

Your answer ___

**Question 15** Perpendicular Lines

Tell whether the lines for each pair of equations are *parallel*, *perpendicular*, or *neither*.

$y = -\frac{1}{2}x - 11$

$16x - 8y = -8$

a. neither b. perpendicular c. parallel

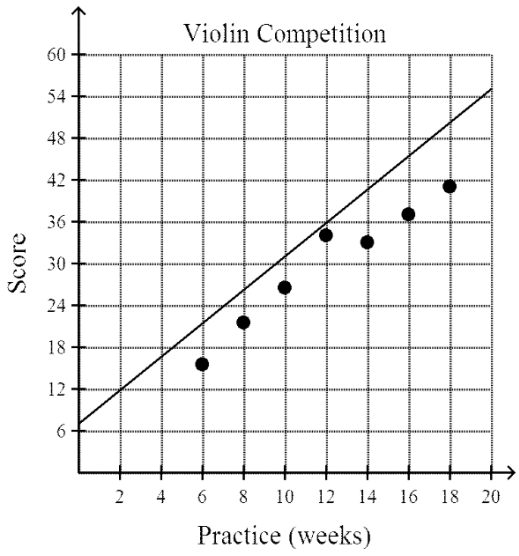
Your answer ___

**Question 16** Scatter Plots and Equations of Lines, Writing an Equation for a Trend Line

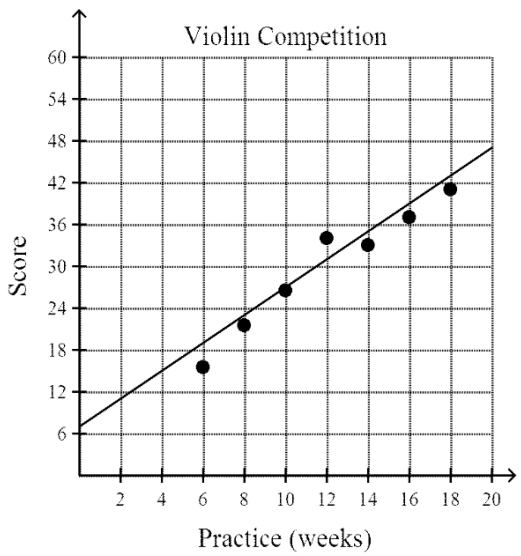
Which graph shows the best trend line for the following data?

| Practice (weeks) | 6 | 8 | 10 | 12 | 14 | 16 | 18 |
|---|---|---|---|---|---|---|---|
| Score | 15.5 | 21.5 | 26.5 | 34 | 33 | 37 | 41 |

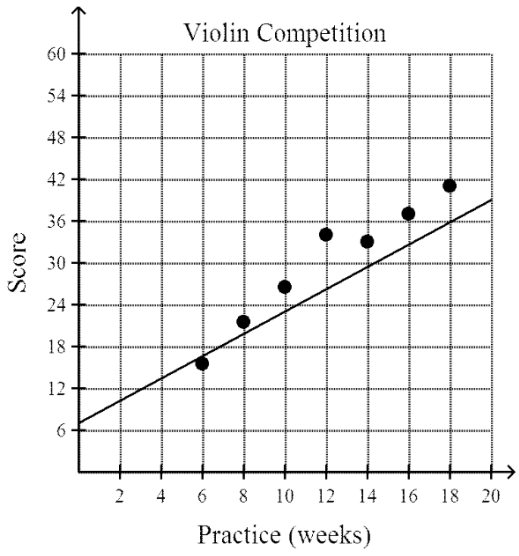
a.



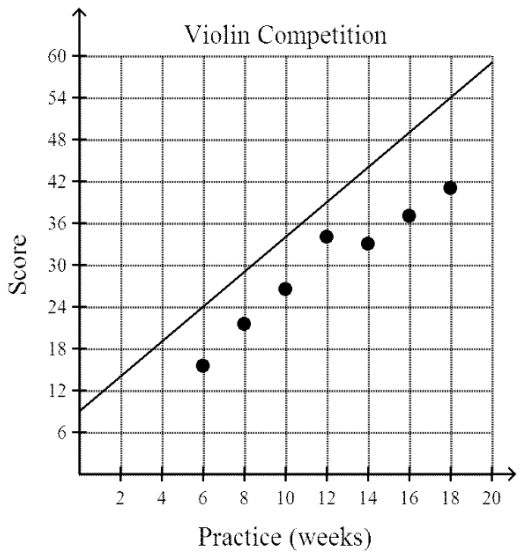

c.




b.




d.




Your answer ___

**Question 17** Solving Systems By Graphing, Analyzing Special Types of Systems

. Tell whether the system has *no solution*, *one solution*, or *infinitely many solutions*.
$y = 2x - 3$
$y = -x + 3$
a. one solution
b. no solutions
c. infinitely many solutions

Your answer ___

**Question 18** Solving Systems Using Substitution

Solve the system of equations.
$3x + 2y = 7$
$y = -3x + 11$

a. $(6, -3)$ b. $(6, -7)$ c. $\left(-4, \frac{19}{2}\right)$ d. $(5, -4)$

Your answer ___

**Question 19** Solving Systems Using Elimination, Multiplying First to Solve Systems

A jar containing only nickels and dimes contains a total of 60 coins. The value of all the coins in the jar is $4.45. Solve by elimination to find the number of nickels and dimes that are in the jar.
a. 30 nickels and 30 dimes
b. 31 nickels and 29 dimes
c. 29 nickels and 31 dimes
d. 28 nickels and 32 dimes

Your answer ___

**Question 20** Applications of Linear Systems, Writing Systems of Linear Equations

At the local ballpark, the team charges $5 for each ticket and expects to make $1,400 in concessions. The team must pay its players $2,000 and pay all other workers $1,600. Each fan gets a free bat that costs the team $3 per bat. How many tickets must be sold to break even?
a. 440 tickets b. 1,100 tickets c. 2,500 tickets d. 275 tickets

Your answer ___

**Question 21** Solving Systems of Linear Inequalities by Graphing

. Which ordered pair is a solution to the system of inequalities.
$1.4x + 7y \geq 21$
$10x - 2y \geq 16$
a. $(4, 1)$ b. $(2, 2)$ c. $(1, 2)$ d. $(5, 2)$

Your answer ___

**Question 22** Using Scientific Notation

Simplify the expression below. Write the answer in scientific notation.

Astronomers measure large distances in light-years. One light-year is the distance that light can travel in one year, or approximately 5,880,000,000,000 miles. Suppose a star is 13.6 light-years from Earth. In scientific notation, how many miles away is it?

a. $1.36 \times 10^{12}$ miles
c. $7.9968 \times 10^{13}$ miles
b. $5.88 \times 10^{12}$ miles
d. $5.88 \times 10^{13}$ miles

Your answer ___

**Question 23** Multiplying and Factoring, Factoring a Monomial from a Polynomial

Factor $40w^{11} + 16w^6$

a. $8w^6(5w^5 + 2)$
c. $w^6(40w^5 + 16)$
b. $8(5w^{11} + 2w^6)$
d. $8w^5(5w^6 + 2w)$

Your answer ___

**Question 24** Factoring Trinomials of the Type $ax^2+bx+c$

Factor $12d^2 + 4d - 1$

a. $(6d + 1)(2d + 1)$
c. $(6d - 1)(2d + 1)$
b. $(6d - 1)(2d - 1)$
d. $(6d + 1)(2d - 1)$

Your answer ___

**Question 25** Factoring Trinomials of the Type $x^2+bx+c$

Complete $z^2 + 9z - 90 = (z - 6)(z +$ ▒ $)$

a. $-9$
c. $90$
b. $15$
d. $-15$

Your answer ___

## Appendix – Resources

**Question 1** Chapter 8-4 More Multiplication Properties of Exponents, Raising a Product to a Power

- Chapter 8 Exponent and Exponent Functions
  - Lesson 4: Video More Multiplication Properties of Exponents Lesson Quiz 8-4
- Khan/simplifying-expressions-with-exponents-2

**Question 2** Chapter 1-6 Median, Median, and Range

- Text Chapter 1 Variables, Function Patterns and Graphs
  - Lesson 6: Video Mean, Median, Mode, and Range Lesson Quiz 1-6
- Khan/central_tendency/mean-median-and-mode

**Question 3** Chapter 2-6 Probability, Theoretical and Experimental Probability

- Chapter 2 Rational Numbers
  Lesson 6: Video Theoretical and Experimental Probability Lesson Quiz 2-6
- Khan/basic-probability
- Khan/simple-probability

**Question 4** Chapter 3-1 Solving Two-Step Equations

- Chapter 3 Solving Equations
  Lesson 1: Video Solving Two-Step Equations Lesson Quiz 3-1
- Khan/two-step-equations
- Khan/solving-equations

**Question 5** Chapter 3-7 Percent of Change

- Chapter 3 Solving Equations
  - Lesson 7: Video Percent of Change Lesson Quiz 3-7

**Question 6** Chapter 4-1 Identifying Solutions of Inequalities, Inequalities and Their Graphs

- Chapter 4 Solving Inequalities
  - Lesson 1: Video Inequalities and Their Graphs Lesson Quiz 4-1
- Khan/equations-and-inequalities
- Khan/inequalities-using-addition-and-subtraction
- Khan/inequalities/v/inequalities-using-multiplication-and-division
- Khan/multi-step-inequalities

**Question 7** Chapter 4-5 Solving Compound Inequalities Containing And

- Chapter 4 Solving Inequalities
  - Lesson 5: Video Compound Inequalities Lesson Quiz 4-5
- Khan/compound-inequalities

**Question 8** Chapter 4-4 Solving Multi-Step Inequalities

- Chapter 4 Solving Inequalities
  - Lesson 4: Video Solving Multi-Step Inequalities Lesson Quiz 4-4
- Khan/multi-step-inequalities

**Question 9** Chapter 5-2 Identifying Relations and Functions

- Chapter 5 Graphs and Functions
  - Lesson 2: Video Relations and Functions Lesson Quiz 5-2
- Khan/testing-if-a-relationship-is-a-function
- Khan/relating-invertibility-to-being-onto-and-one-to-one
- Khan/domain-and-range-of-a-function

**Question 10** Chapter 5-3 Modeling Functions

- Chapter 5 Graphs and Functions
  - Lesson 3: Video Function Rules, Tables, and Graphs Lesson Quiz 5-3
- Khan/graphing-a--basic-function
- Khan/graphing-a-quadratic-function

**Question 11** Chapter 5-4 Writing a Function Rule

- Chapter 5 Graphs and Functions
  - Lesson 4: Video Writing a Function Rule Lesson Quiz 5-4

**Question 12** Chapter 6-2 Writing Linear Equations, Slope Intercept Form

- Chapter 6 Linear Equations and Their Graphs
  - Lesson 2: Video Slope-Intercept Form Lesson Quiz 6-2
- Khan/slope-and-y-intercept-intuition
- Khan/ca-algebra-i--slope-and-y-intercept
- Khan/point-slope-and-standard-form

**Question 13** Chapter 6-4 Writing Equations in Standard Form

- Chapter 6 Linear Equations and Their Graphs
  - Lesson 4: Video Standard Form Lesson Quiz 6-4
- Khan/converting-to-slope-intercept-form

**Question 14** Chapter 6-5 Point-Slope Form and Writing Linear Equations

- Chapter 6 Linear Equations and Their Graphs
  - Lesson 5: Video Point-Slope Form and Writing Linear Equations Lesson Quiz 6-5
- Khan/point-slope-and-standard-form

**Question 15** Chapter 6-6 Perpendicular Lines

- Chapter 6 Linear Equations and Their Graphs
  - Lesson 6: Video Parallel and Perpendicular Lines Lesson Quiz 6-6
- Khan/perpendicular-line-slope

**Question 16** Chapter 6-7 Scatter Plots and Equations of Lines, Writing an Equation for a Trend Line

- Chapter 6 Linear Equations and Their Graphs
  - Lesson 7: Video Scatter Plots and Equations of Lines Lesson Quiz 6-7
- Khan/plotting_the_line_of_best_fit

**Question 17** Chapter 7-1 Solving Systems By Graphing, Analyzing Special Types of Systems

- Chapter 7 Systems of Equations and Inequalities
  - Lesson 1: Video Solving Systems by Graphing Lesson Quiz 7-1
- Khan/solving-linear-systems-by-graphing
-

**Question 18** Chapter 7-2 Solving Systems Using Substitution

- Chapter 7 Systems of Equations and Inequalities
  - Lesson 2: Video Solving Systems Using Substitution Lesson Quiz 7-2
- Khan /solving-linear-systems-by-substitution

**Question 19** 7-3 Solving Systems Using Elimination, Multiplying First to Solve Systems

- Chapter 7 Systems of Equations and Inequalities
  - Lesson 3: Video Solving Systems Using Elimination Lesson Quiz 7-3
- Khan/solving-systems-by-elimination
- Khan/solving-systems-by-elimination-2
- Khan/addition-elimination-method-4

**Question 20** Chapter 7-4 Applications of Linear Systems, Writing Systems of Linear Equations

- Chapter 7 Systems of Equations and Inequalities
  - Lesson 4: Video Applications of Linear Systems Lesson Quiz 7-4

**Question 21** Chapter 7-6 Solving Systems of Linear Inequalities by Graphing

- Chapter 7 Systems of Equations and Inequalities
  - Lesson 6: Video Systems of Linear Inequalities Lesson Quiz 7-6
- Khan/system-of-inequalities-application
- Khan/graphing-systems-of-inequalities

**Question 22** Chapter 8.2 Using Scientific Notation

- Chapter 8 Exponents and Exponential Functions
  - Lesson 2: Video Scientific Notation Lesson Quiz 8-2
- Khan/scientific-notation--old
- Khan/scientific-notation/v/scientific-notation-examples
- Khan/scientific-notation-3--new

**Question 23** Chapter 9-2 Multiplying and Factoring, Factoring a Monomial from a Polynomial

- Chapter 9 Polynomials and Factoring
  - Lesson 2: Video Multiplying and Factoring Lesson Quiz 9-2
- Khan/factoring-and-the-distributive-property
- Khan/factor-by-grouping-and-factoring-completely

**Question 24** Chapter 9-6 Factoring Trinomials of the Type $ax^2+bx+c$

- Chapter 9 Polynomials and Factoring
  - Lesson 6: Video Factoring Trinomials of the Type $ax^2 + bx + c$ Lesson Quiz 9-6
- Khan/factoring-quadratic-expressions

**Question 25** Chapter 9-5 Factoring Trinomials of the Type $x^2+bx+c$

- Chapter 9 Polynomials and Factoring
  - Lesson 5: Video Factoring Trinomials of the Type $x^2 + bx + c$ Lesson Quiz 9-5
- Khan/factoring-polynomials-1
- Khan/factoring-quadratic-expressions