Example Items

Algebra I Pre-AP

Algebra I Pre-AP Example Items are a **representative set** of items for the ACP. Teachers may use this set of items along with the test blueprint as guides to prepare students for the ACP. On the last page, the correct answer, content SE and SE justification are listed for each item.

The specific part of an SE that an Example Item measures is NOT necessarily the only part of the SE that is assessed on the ACP. None of these Example Items will appear on the ACP.

Teachers may provide feedback regarding Example Items.

(1) Download the Example Feedback Form and email it. The form is located on the homepage of Assessment.dallasisd.org.

OR

(2) To submit directly, click "Example Feedback" **after** you login to the Assessment website.

First Semester
2018–2019
Code #: 1191

STAAR ALGEBRA I REFERENCE MATERIALS

STAAR State of Texas Assessments of Academic Readiness

FACTORING

Perfect square trinomials	$a^2 + 2ab + b^2 = (a + b)^2$ $a^2 - 2ab + b^2 = (a - b)^2$
Difference of squares	$a^2 - b^2 = (a - b)(a + b)$

PROPERTIES OF EXPONENTS

Product of powers	$a^m a^n = a^{(m+n)}$
Quotient of powers	$\frac{a^m}{a^n} = a^{(m-n)}$
Power of a power	$(a^m)^n = a^{mn}$
Rational exponent	$a^{\frac{m}{n}} = \sqrt[n]{a^m}$
Negative exponent	$a^{-n} = \frac{1}{a^n}$

LINEAR EQUATIONS

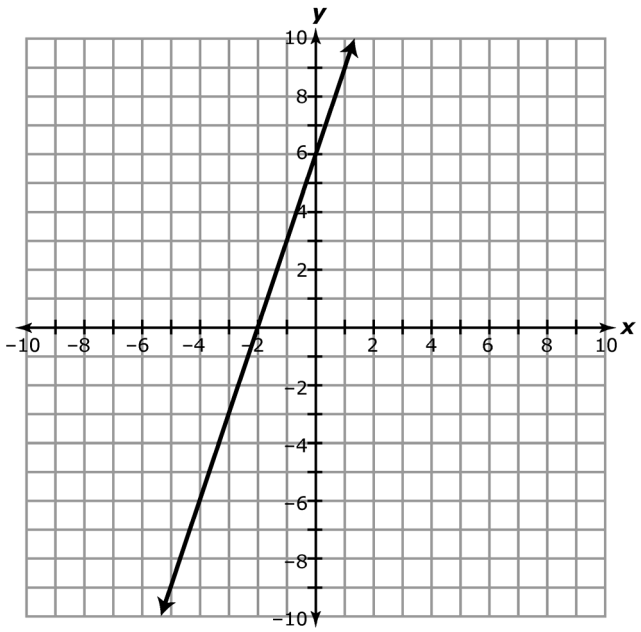
Standard form	$Ax + By = C$
Slope-intercept form	$y = mx + b$
Point-slope form	$y - y_1 = m(x - x_1)$
Slope of a line	$m = \frac{y_2 - y_1}{x_2 - x_1}$

QUADRATIC EQUATIONS

Standard form	$f(x) = ax^2 + bx + c$
Vertex form	$f(x) = a(x - h)^2 + k$
Quadratic formula	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
Axis of symmetry	$x = \frac{-b}{2a}$

EXAMPLE ITEMS Algebra I Pre-AP, Sem 1

1 A line is graphed on the coordinate grid as shown.



Which table shows the same rate of change as the line in the graph?

A

x	*y*
−9	2
−8	5
−7	8
−6	11
−5	14

B

x	*y*
−4	3
−2	−3
0	−9
2	−15
4	−21

C

x	*y*
−6	3
−3	4
0	5
3	6
6	7

D

x	*y*
2	3
5	6
8	9
11	12
14	15

2 Which situation is represented by the function $f(x) = 65 + 0.24x$?

A An equipment rental company charges $65 a day plus $24 for the damage fees.

B A shoe salesperson earns 24% of all sales over $65.

C A cell phone company charges $65 plus $0.24 per minute used.

D A person can download 65 songs for free, then they must pay $0.24 per song after that.

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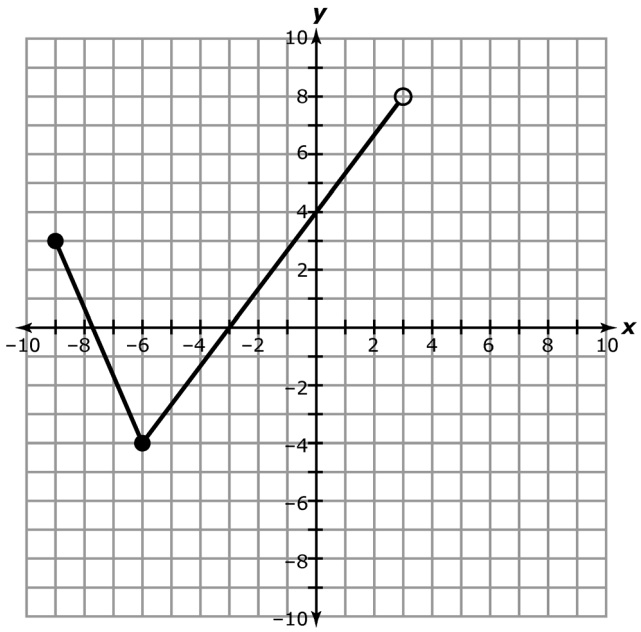
EXAMPLE ITEMS Algebra I Pre-AP, Sem 1

3 The graph of a function is shown.



What is the domain of this function?

A $\{x \mid -9 \leq x \leq 3\}$

B $\{x \mid -9 \leq x < 3\}$

C $\{y \mid -4 \leq y \leq 8\}$

D $\{y \mid -4 \leq y < 8\}$

4 Which expression is equivalent to $(3q^8r^{-4} \bullet 4r^2 \bullet 3r^4q^4)^{\frac{1}{2}}$?

A $6q^6r$

B $18q^6r$

C $\frac{6q^{16}}{r^{16}}$

D $\frac{18q^{16}}{r^{16}}$

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EXAMPLE ITEMS Algebra I Pre-AP, Sem 1

5 What is the x-intercept of the function $f(x) = \frac{1}{2}x - 4$?

A (0, 4)

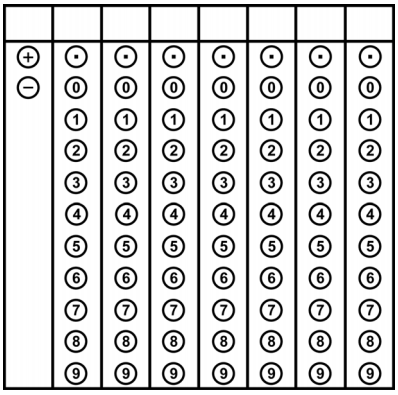
B (0, 8)

C (4, 0)

D (8, 0)

6 What value of x makes the equation $\frac{1}{2}(5x + 16) - \frac{3}{2}(x - 8) = -4$ true?.

Record the answer and fill in the bubbles on the grid provided. Be sure to use the correct place value.



7 Which expression is equivalent to $12p^2 - 12p - 9$?

A $(2p - 3)(2p + 1)$

B $(2p - 1)(2p + 3)$

C $3(2p + 3)(2p - 1)$

D $3(2p + 1)(2p - 3)$

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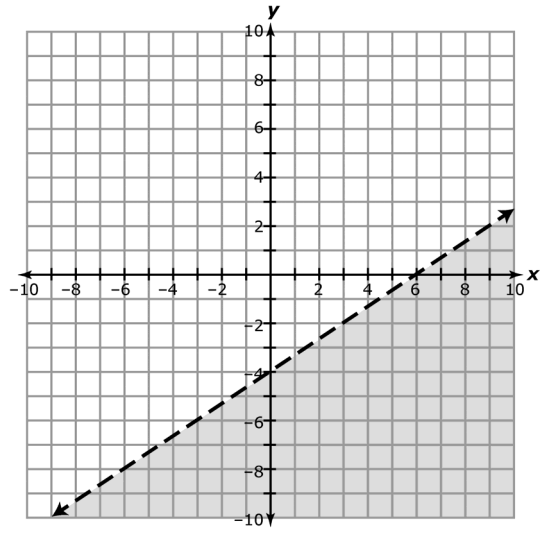
EXAMPLE ITEMS Algebra I Pre-AP, Sem 1

8 Which graph represents the solution set of $2x - 3y > 12$?

A



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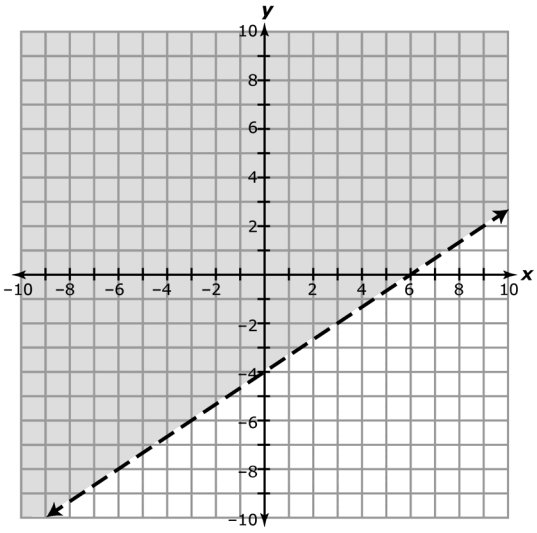

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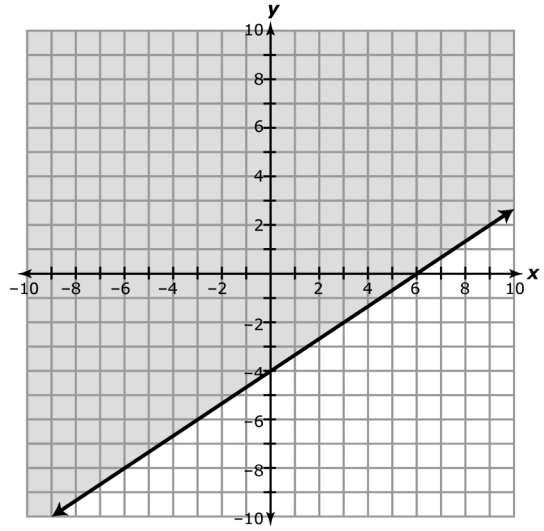

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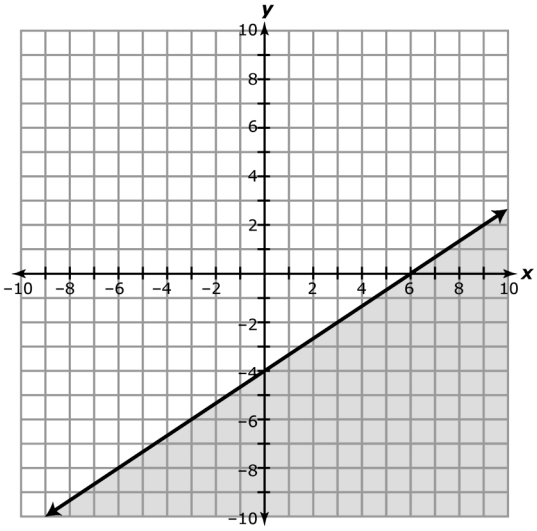

9 What is the equation of the line that passes through the point (−1, −9) and has an undefined slope?

A $y = -1$

B $y = -9$

C $x = -1$

D $x = -9$

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EXAMPLE ITEMS Algebra I Pre-AP, Sem 1

10 During game 3 of the basketball championships, San Antonio scored 97 points consisting of 2-point and 3-point baskets. If San Antonio made a total of 45 baskets, how many of each type did they made?

A 2-point baskets: 7
3-point baskets: 38

B 2-point baskets: 38
3-point baskets: 7

C 2-point baskets: 42
3-point baskets: 3

D 2-point baskets: 3
3-point baskets: 42

11 A hot air balloon's height, h, varies directly with t, the time in minutes. If the hot air balloon reaches 700 feet in 10 minutes, which direct variation equation represents this situation?

A $h = 70t$

B $t = 70h$

C $70 = \frac{t}{h}$

D $h = \frac{t}{70}$

12 Nellie has \$24 to spend on friendship bracelets. Each bracelet costs \$4. The function $f(b) = 24 - 4b$ represents the amount of money Nellie has left, $f(b)$, after purchasing b bracelets. What is the range for this situation?

A $0 \leq b \leq 6$

B $0 \leq f(b) \leq 24$

C $\{0, 1, 2, 3, 4, 5, 6\}$

D $\{0, 4, 8, 12, 16, 20, 24\}$

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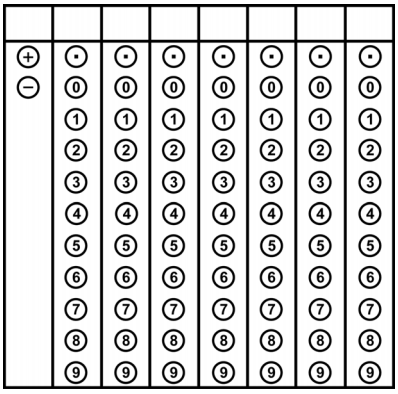
EXAMPLE ITEMS Algebra I Pre-AP, Sem 1

13 What is the slope of the line that passes through the points (–5, 7) and (1, –5)?

Record the answer and fill in the bubbles on the grid provided. Be sure to use the correct place value.



14 The table shows the total cost of a meal at a local restaurant. The meal includes a main dish and a choice of several side dishes.

Number of Side Dishes	Total Cost of Meal
2	\$6.00
3	\$7.25
4	\$8.50
5	\$9.75
6	\$11.00

How much does it cost to buy a meal with zero side dishes?

A \$1.25

B \$2.50

C \$3.50

D \$4.75

15 Which expression is equivalent to $2x^2 - 13x - 7$?

A $(2x + 1)(x - 7)$

B $(2x - 7)(x + 1)$

C $(2x + 1)(x + 7)$

D $(2x + 7)(x + 1)$

EXAMPLE ITEMS Algebra I Pre-AP, Sem 1

16 What is the slope of the line represented by the equation $2x + 4y = 5$?

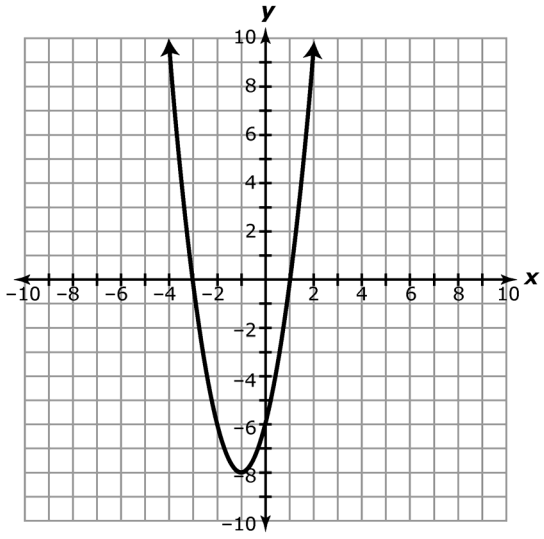
A -2

B $-\frac{1}{2}$

C $\frac{1}{2}$

D 2

17 The graph of a quadratic function is shown.



What is the range of the function?

A $y \geq -8$

B $-8 \leq y \leq 10$

C $y \in \mathbb{R}$

D $-4 \leq y \leq 1$

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EXAMPLE ITEMS Algebra I Pre-AP, Sem 1

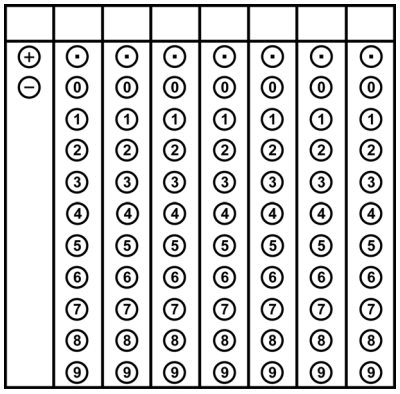
18 Two companies are trying to sell laptops to a school district. The tables show the total cost for laptops purchased from each of the companies.

Company 1	
Laptops	**Cost**
1	$425
3	$475
5	$525

Company 2	
Laptops	**Cost**
1	$250
3	$350
5	$450

How many laptops would the school district have to purchase for the cost to be the same for both companies?

Record the answer and fill in the bubbles on the grid provided. Be sure to use the correct place value.



19 The theater arts students sold 500 tickets to the spring musical and collected a total of $3,160. Adult tickets sold for $8.00 and student tickets sold for $5.00. Which system of equations is used to find a, the number of adult tickets and s, the number of student tickets sold?

A $a + s = 3{,}160$
$5a + 8s = 500$

B $a + s = 3{,}160$
$8a + 5s = 500$

C $a + s = 500$
$5a + 8s = 3{,}160$

D $a + s = 500$
$8a + 5s = 3{,}160$

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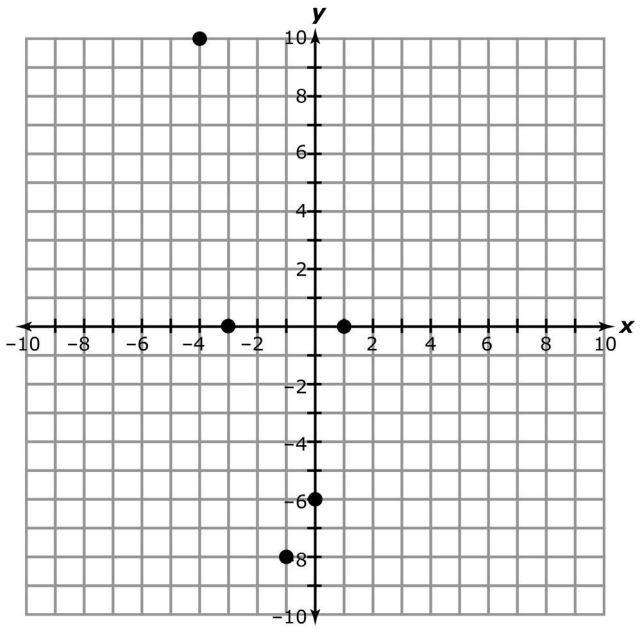
EXAMPLE ITEMS Algebra I Pre-AP, Sem 1

20 The graph shows several coordinates for the quadratic function $m(x)$.



What is the range of the function?

A $y \geq -8$

B $y \in \mathbb{R}$

C $-8 \leq y \leq 10$

D $-4 \leq y \leq 1$

21 The table represents several points on the graph of a linear function.

x	−27	−12	−3	3	18
y	39	19	7	−1	−21

What is the rate of change of y with respect to x for this function?

A $\frac{4}{3}$

B $\frac{3}{4}$

C $-\frac{3}{4}$

D $-\frac{4}{3}$

Dallas ISD - Example Items

22 What is the equation of a line parallel to $2x - 8y = 3$ that contains the point (8, −11)?

A $x - 4y = 52$

B $x - 4y = -52$

C $4x - y = 43$

D $4x + y = 21$

23 The table contains some points on the graph of a linear function.

x	*y*
2	−3.5
4	−2.0
6	−0.5
10	2.5

What is the equation of a line that contains the point (−12, 12) and is perpendicular to the function represented by the table?

A $3x + 4y = 12$

B $3x - 4y = -84$

C $4x + 3y = -12$

D $4x - 3y = -84$

24 What value of y makes the equation $-6y + 3(12y) = 20(y - 1) + 15$ true?

A −0.5

B −0.1

C 1.4

D 3.5

EXAMPLE ITEMS Algebra I Pre-AP Key, Sem 1

Item#	Key	SE	SE Justification
1	A	A.3B	Calculate the rate of change of a linear function represented tabularly, graphically in context of mathematical problems.
2	C	A.2C	Write linear equations in two variables given a verbal description.
3	B	A.2A	Determine the domain of a linear function in mathematical problems; and represent domain using inequalities.
4	A	A.11B	Simplify algebraic expressions using the laws of exponents, including integral and rational exponents.
5	D	A.3C	Identify key features, including *x*-intercept in mathematical problems.
6	–24	A.5A	Solve linear equations in one variable, including those for which the application of the distributive property is necessary.
7	D	A.10E	Factor, if possible, trinomials with real factors in the form ax^2+bx+c, of degree two.
8	A	A.3D	Graph the solution set of linear inequalities in two variables on the coordinate plane.
9	C	A.2G	Write an equation of a line that is perpendicular to the *x*- or *y*-axis and determine whether the slope of the line is zero or undefined.
10	B	A.5C	Solve systems of two linear equations with two variables for real-world problems.
11	A	A.2D	Write equations involving direct variation.
12	D	A.2A	Determine reasonable range values for real-world situations (discrete).
13	–2	A.3A	Determine the slope of a line given two points on the line.
14	C	A.3C	Identify key features, including *y*-intercept, in real-world problems.
15	A	A.10E	Factor, if possible, perfect square trinomials of degree two with real factors in the form $ax^2 + bx + c$.
16	B	A.3A	Determine the slope of a line given an equation written in various forms, including $Ax + By = C$.
17	A	A.6A	Determine the range of quadratic functions and represent the range using inequalities.
18	8	A.5C	Solve systems of two linear equations with two variables for real-world problems.
19	D	A.2I	Write systems of two linear equations given a verbal description.
20	A	A.6A	Determine the range of quadratic functions and represent the domain and ranged using inequalities.
21	D	A.3B	Calculate the rate of change of a linear function represented tabularly in context of mathematical problems.
22	A	A.2E	Write the equation of a line that contains a given point and is parallel to a given line.
23	C	A.2F	Write the equation of a line that contains a given point and is perpendicular to a given line.
24	A	A.5A	Solve linear equations in one variable, including those for which the application of the distributive property is necessary and for which variables are included on both sides.