Sixth Grade Mathematics

2016 Released Items Analysis

Teacher:_____
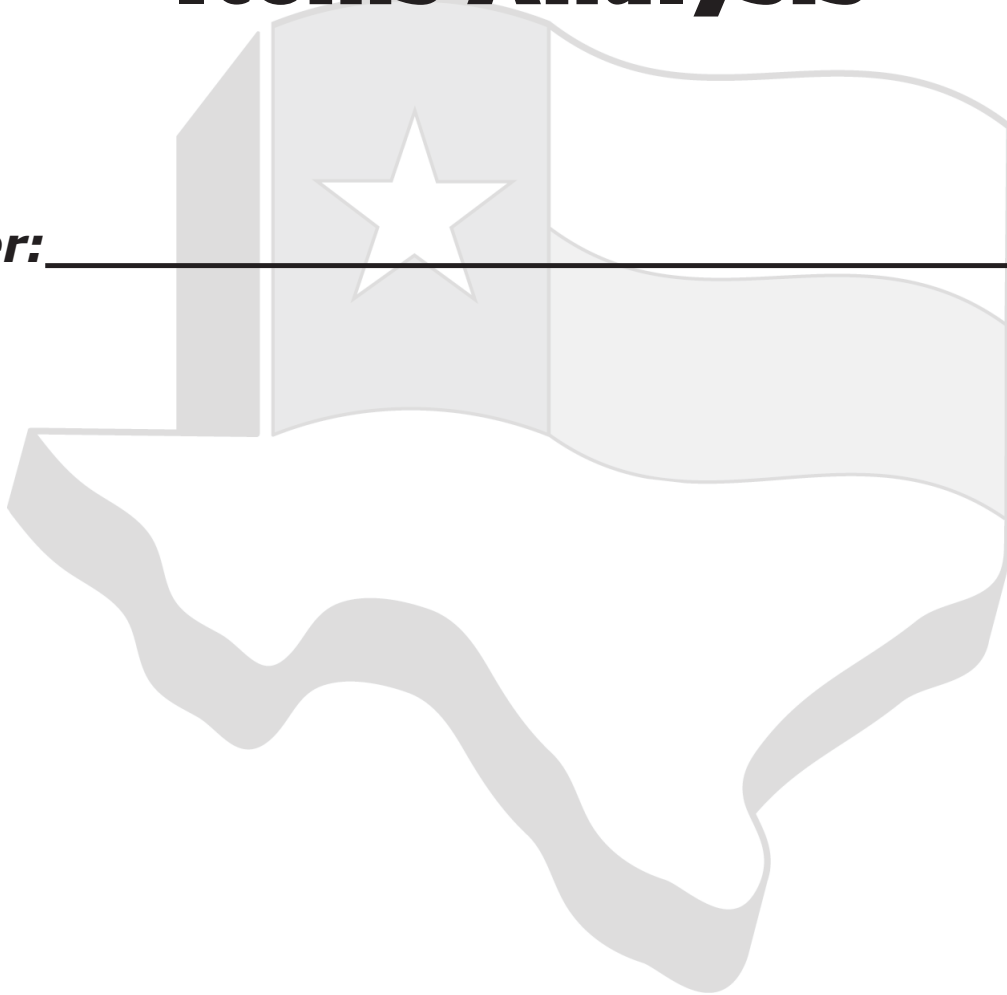
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6th Grade Mathematics
Released Items

Name: _____

Teacher: _____

Date: _____

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Instructional Analysis
2016 Released Items

$$2 + 5 = \frac{4}{2}$$
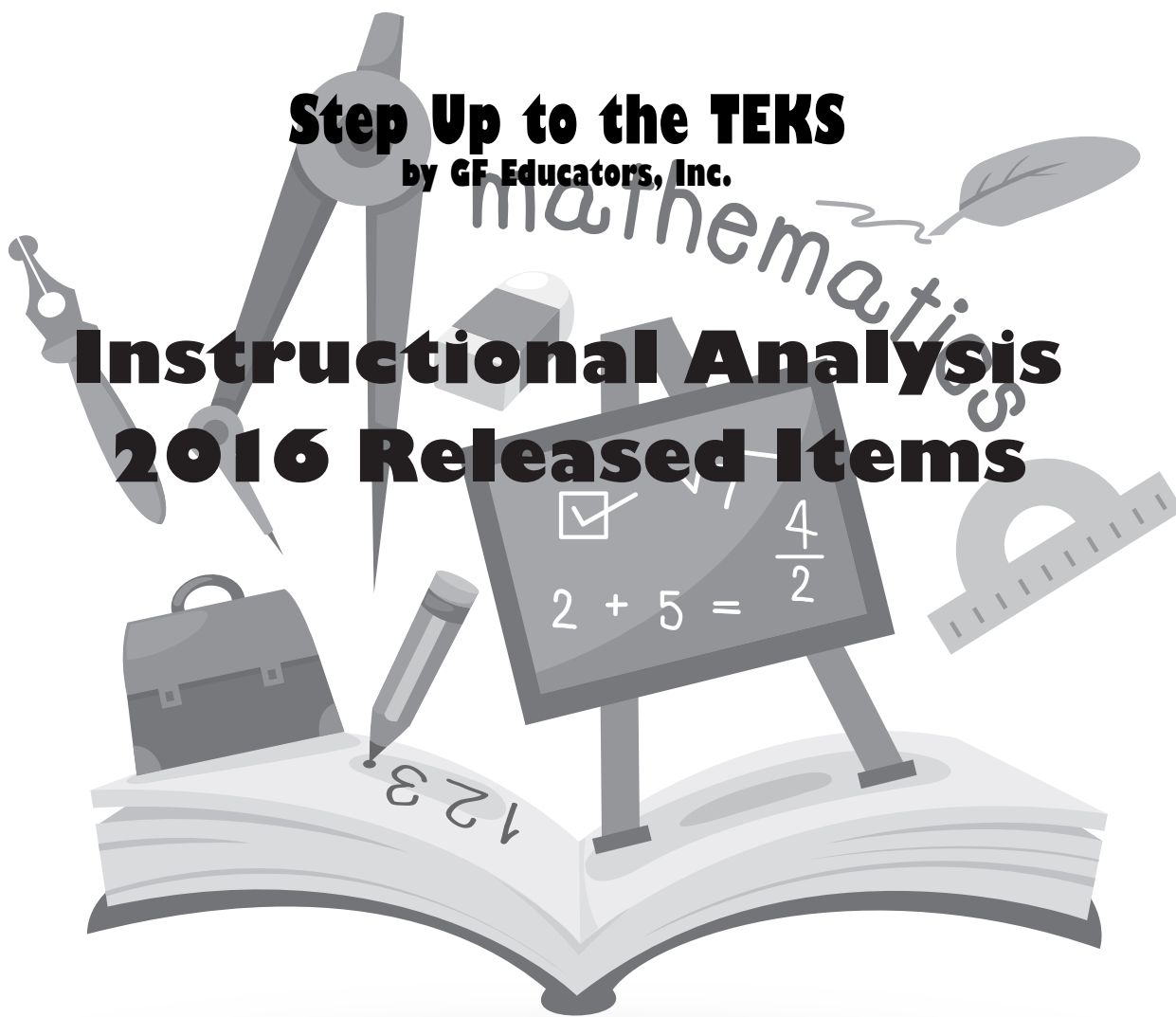
TEKS 6.2A Supporting Standard
classify whole numbers, integers, and rational numbers using a visual representation such as a Venn diagram to describe relationships between sets of numbers

ITEM

32 Which graphic organizer correctly groups the following numbers?

3.4 23 1.2

F

Rational Numbers
3.4   −1.2
Integers
−2
Whole Numbers
3

H

Rational Numbers
3.4
Integers
−1.2
Whole Numbers
−2   3

G

Rational Numbers
3.4
Integers
−2   −1.2
Whole Numbers
3

J

Rational Numbers
Integers
−2   3.4   −1.2
Whole Numbers
3

Item Analysis	
Verb	Classify
Using or Including	Visual Representation (Venn Diagram)
Concept	Set of Numbers
Process TEKS	**6.1B, 6.1E, 6.1F**
Notes	

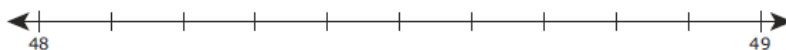GF Educators Inc.
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TEKS 6.2C Supporting Standard
locate, compare, and order integers and rational numbers using a number line

ITEM

19 Alyssa will correctly label the numbers 48.4, $48\frac{1}{2}$, 48.09, and $48\frac{3}{5}$ on the number line below.

48 |————————————————| 49

A 48.4

B $48\frac{1}{2}$

C 48.09

D $48\frac{3}{5}$

Item Analysis	
Verb	Locate
Using or Including	Number Line
Concept	Rational Numbers
Process TEKS	**6.1A, 6.1B, 6.1E, 6.1F**
Notes	

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TEKS 6.2D Readiness Standard
order a set of rational numbers arising from mathematical and real-world contexts

ITEM

15 The table shows the amount of time four students practiced the trumpet one day.

Trumpet Practice Times

Name	Time (hours)
Cole	$1\frac{2}{3}$
Gus	$1\frac{1}{2}$
Ryan	$1\frac{1}{4}$
Jacob	$1\frac{7}{12}$

Which list shows the names of the students in order from the least amount of practice time to the greatest amount of practice time?

A Ryan, Jacob, Cole, Gus

B Cole, Jacob, Gus, Ryan

C Ryan, Gus, Jacob, Cole

D Gus, Ryan, Cole, Jacob

Item Analysis	
Verb	Order
Using or Including	NA
Concept	Rational Numbers
Process TEKS	6.1A, 6.1B, 6.1E, 6.1F

Notes

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TEKS 6.2D Readiness Standard
order a set of rational numbers arising from mathematical and real-world contexts

ITEM

45 Students in Mrs. Guerro's class must complete at least 40 math problems for homework every week. The table shows the progress of four students on Wednesday.

Homework Progress

Student	Amount Completed
Katie	0.4
D'Angelo	$\frac{45}{40}$
Grace	100%
Jonah	$\frac{2}{3}$

Which list shows the amounts of homework completed in order from greatest to least?

A $0.4, \frac{2}{3}, \frac{45}{40}, 100\%$

B $\frac{45}{40}, 100\%, \frac{2}{3}, 0.4$

C $0.4, \frac{2}{3}, 100\%, \frac{45}{40}$

D $\frac{2}{3}, 0.4, \frac{45}{40}, 100\%$

Item Analysis	
Verb	Order
Using or Including	NA
Concept	Rational Numbers
Process TEKS	6.1A, 6.1B, 6.1E, 6.1F

Notes

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TEKS 6.4D Supporting Standard
give examples of rates as the comparison by division of two quantities having different attributes, including rates as quotients

ITEM

23 A county with an area of 425 square miles has a population of 9,350 residents. Which rate best represents the relationship between the population of the county and the area of the county?

   A 22 square miles per resident
   B 9,350 residents per square mile
   C 22 residents per square mile
   D 425 square miles per resident

Item Analysis	
Verb	Give Examples
Using or Including	Rates as Quotients
Concept	Rate by Division
Process TEKS	**6.1A, 6.1B, 6.1G**

Notes

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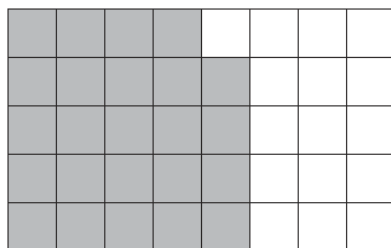*STEP IT UP*
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TEKS 6.4E Supporting Standard
represent ratios and percents with concrete models, fractions, and decimals

ITEM

35 The shaded area on the grid represents the part of a rectangular wall that was painted. Each small square on the wall has the same dimensions.

What percentage of the wall was painted?
   A 64%
   B 24%
   C 60%
   D 16%

Item Analysis	
Verb	Represent
Using or Including	Concrete Models
Concept	Percents
Process TEKS	**6.1A, 6.1B, 6.1D, 6.1F**

Notes

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TEKS 6.4F Supporting Standard
represent benchmark fractions and percents such as 1%, 10%, 25%, 33 1/3%, and multiples of these values using 10 by 10 grids, strip diagrams, number lines, and numbers

ITEM

25 This shaded model represents 100%.

Which model represents $33\frac{1}{3}$ %?

A

B

C

D

Item Analysis	
Verb	Represent
Using or Including	Strip Diagrams
Concept	Benchmark Percents
Process TEKS	6.1B, 6.1D, 6.1F

Notes

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TEKS 6.4G Readiness Standard
generate equivalent forms of fractions, decimals, and percents using real-world problems, including problems that involve money

ITEM

13 A farmer watered $\frac{3}{8}$ of a field. What percentage is equivalent to the fraction of the field the8 farmer watered?

A   24.00%
B   37.50%
C   8.30%
D   3.75%

Item Analysis	
Verb	Generate
Using or Including	Real-World
Concept	Fraction to Percent
Process TEKS	6.1A, 6.1B, 6.1F

Notes

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TEKS 6.4G Readiness Standard
generate equivalent forms of fractions, decimals, and percents using real-world problems, including problems that involve money

ITEM

28 A meteorologist at a television station reported that a town received 0.95 in. of rain. Which fraction is equivalent to this amount of rain in inches?

A $\frac{19}{50}$ in.

B $\frac{19}{20}$ in.

C $\frac{95}{10}$ in.

D $\frac{9}{5}$ in.

Item Analysis	
Verb	Generate
Using or Including	Real-World
Concept	Decimal to Fraction
Process TEKS	**6.1A, 6.1B, 6.1F**

Notes

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TEKS 6.4G Readiness Standard
generate equivalent forms of fractions, decimals, and percents using real-world problems, including problems that involve money

ITEM

42 A restaurant offered cooking classes on 24 of the 30 days in November. What decimal is equivalent to the fraction of days in November that classes were offered at the restaurant?

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

Item Analysis	
Verb	Generate
Using or Including	Real-World
Concept	Fraction to Decimal
Process TEKS	**6.1A, 6.1B, 6.1F**

Notes

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TEKS 6.7A Readiness Standard
generate equivalent numerical expressions using order of operations, including whole number exponents, and prime factorization

ITEM

1 Frank had $65. He spent $2 per day for 7 days. Then he was given $9 to divide equally between himself and his 2 brothers. The following expression can be used to find the amount of money Frank had after that.

$$65 - 2 \cdot 7 + 9 \div 3$$

Based on this expression, what is the amount of money Frank had remaining?

A $150
B $54
C $20
D $444

Item Analysis	
Verb	Generate
Using or Including	Order of Operation
Concept	Equivalent Numerical Expression
Process TEKS	6.1A, 6.1B, 6.1F

Notes

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TEKS 6.7A Readiness Standard
generate equivalent numerical expressions using order of operations, including whole number exponents, and prime factorization

ITEM

46 What is the prime factorization of 110?

F $5^2 \cdot 11$
G $2^5 \cdot 11$
H $5 \cdot 22$
J $2 \cdot 5 \cdot 11$

Item Analysis	
Verb	Generate
Using or Including	Prime Factorization
Concept	Equivalent Numerical Expression
Process TEKS	6.1B, 6.1F

Notes

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TEKS 6.7D Readiness Standard
generate equivalent expressions using the properties of operations: inverse, identity, commutative, associative, and distributive properties

ITEM

9 Which two expressions are equivalent?

A $\quad 4 + (3 \cdot y)$ and $(4 + 3) \cdot y$

B $\quad (18 \div y) + 10$ and $10 + (y \div 18)$

C $\quad 12 (y \cdot 2)$ and $12 (2 \cdot y)$

D $\quad (10 - 6) \div y$ and $10 (6 \div y)$

Item Analysis	
Verb	Generate
Using or Including	Properties of Operations Associative
Concept	Equivalent Expressions
Process TEKS	6.1B, 6.1F

Notes

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TEKS 6.7D Readiness Standard
generate equivalent expressions using the properties of operations: inverse, identity, commutative, associative, and distributive properties

ITEM

52 Which two expressions are equivalent?

F $\quad 9(6 + x)$
$\quad 9 \cdot 6 + 9 \cdot x$

G $\quad x + (8 \cdot 9)$
$\quad (x + 8) \cdot 9$

H $\quad 8 \cdot 6 \div x$
$\quad 8 \cdot x \div 6$

J $\quad 6 \cdot x + 3$
$\quad 6 \cdot (x + 3)$

Item Analysis	
Verb	Generate
Using or Including	Properties of Operations Distributive
Concept	Equivalent Expressions
Process TEKS	6.1B, 6.1F

Notes

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TEKS 6.3A Supporting Standard
recognize that dividing by a rational number and multiplying by its reciprocal result in equivalent values

ITEM

6 A carpenter wants to cut a board that is $\frac{5}{6}$ ft long into pieces that are $\frac{5}{16}$ ft long. The carpenter will use the expression shown to calculate the number of pieces that can be cut from the board.

$$\frac{5}{6} \div \frac{5}{16}$$

F $\frac{5}{6} \cdot \frac{16}{5}$

G $\frac{5}{6} \cdot \frac{5}{16}$

H $\frac{6}{5} \div \frac{5}{16}$

J $\frac{6}{5} \div \frac{16}{5}$

Item Analysis	
Verb	Recognize
Using or Including	NA
Concept	Multipying Reciprocal
Process TEKS	**6.1A, 6.1B, 6.1F**

Notes

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TEKS 6.3D Readiness Standard
add, subtract, multiply, and divide integers fluently

ITEM

12 A team of four players competed in a golf contest. The names and scores of the players on the team are shown in the table. The team's score is the sum of all the scores in the table.

Golf Scores

Player	Score
Brett	−2
Elliott	+3
Lin	−4
Tyrone	−1

What is the team's score?

F 10

G -10

H -4

J Not here

Item Analysis	
Verb	Add
Using or Including	NA
Concept	Integer Operations
Process TEKS	**6.1A, 6.1B, 6.1E, 6.1F**

Notes

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TEKS 6.3D Readiness Standard
add, subtract, multiply, and divide integers fluently

ITEM

30 A teacher wrote this expression on the board.

$$(-6)(2) + (-8 \div 4)$$

What is the value of this expression?

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

Item Analysis	
Verb	Add, Multiply, Divide
Using or Including	NA
Concept	Integer Operation
Process TEKS	**6.1A, 6.1B, 6.1F**

Notes

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TEKS 6.3E Readiness Standard
multiply and divide positive rational numbers fluently

ITEM

2 A baby weighed 7.25 lb at birth. At the end of 8 months, the baby weighed $2\frac{1}{2}$ times its birth weight. How many pounds did the baby weigh at the end of 8 months?

F 14.5 lb
G 9.75 lb
H 18.125 lb
J 14.125 lb

Item Analysis	
Verb	Multiply
Using or Including	NA
Concept	Positive Rational Number Operations
Process TEKS	**6.1A, 6.1B, 6.1F**

Notes

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TEKS 6.3E Readiness Standard
multiply and divide positive rational numbers fluently

ITEM

38 A recipe for cookies requires $\frac{2}{3}$ cup of butter. Rama wants to make $\frac{3}{4}$ of the recipe. How many cups of butter should Rama use to make the cookies?

F $1\frac{5}{12}$ c

G $\frac{8}{9}$ c

H $\frac{1}{12}$ c

J $\frac{1}{2}$ c

Item Analysis	
Verb	Division
Using or Including	NA
Concept	Positive Rational Number Operations
Process TEKS	**6.1A, 6.1B, 6.1F**

Notes

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TEKS 6.4A Supporting Standard
compare two rules verbally, numerically, graphically, and symbolically in the form of y = ax or y = x + a in order to differentiate between additive and multiplicative relationships

ITEM

20 Which statement describes the relationship between *x* and *y* in these two equations?

$$y = 2x$$
$$y = x + 2$$

F In $y = 2x$ the value of y is 2 more than the value of x, and in $y = x + 2$ the value of y is twice the value of x.

G In $y = 2x$ and in $y = x + 2$, the value of y is 2 more than the value of x.

H In $y = 2x$ and in $y = x + 2$, the value of y is twice the value of x.

J In $y = 2x$ the value of y is twice the value of x, and in $y = x + 2$ the value of y is 2 more than the value of x.

Item Analysis	
Verb	Compare
Using or Including	NA
Concept	Verbally
Process TEKS	**6.1B, 6.1G**

Notes

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TEKS 6.4B Readiness Standard
apply qualitative and quantitative reasoning to solve prediction and comparison of real-world problems involving ratios and rates

ITEM

4 A barrel contained 60 gallons of water. Water leaked out of the barrel at a rate of 5 gallons every 3 days.

At this rate, how many days did it take for all 60 gallons of water to leak out of the barrel?

F 20 days

G 12 days

H 100 days

J 36 days

Item Analysis	
Verb	Apply/Solve
Using or Including	Rel-World
Concept	Rates
Process TEKS	**6.1A, 6.1B, 6.1F**

Notes

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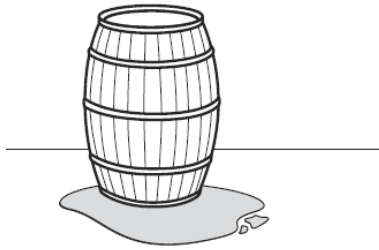**www.StepUpTEKS.com**

TEKS 6.4B Readiness Standard
apply qualitative and quantitative reasoning to solve prediction and comparison of real-world problems involving ratios and rates

ITEM

40 Aiden asked a group of students to choose their favorite type of music from the choices of rock, hip-hop, and country. The results of the survey are shown in the graph.

Favorite Type of Music
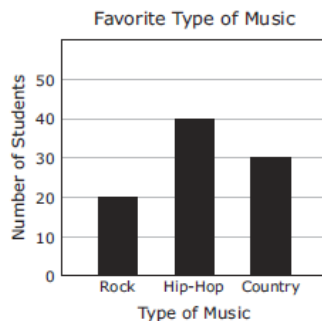
Based on the graph, how many students in a class of 360 students would be expected to choose hip-hop or rock as their favorite type of music?

F 240

G 80

H 60

J 180

Item Analysis	
Verb	Apply/Prediction
Using or Including	NA
Concept	Ratios
Process TEKS	**6.1A, 6.1B, 6.1E, 6.1F**

Notes

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TEKS 6.5A Supporting Standard
represent mathematical and real-world problems involving ratios and rates using scale factors, tables, graphs, and proportions

ITEM

51 To make pink paint, Sylvia mixes 7 cups of white paint to every 3 cups of red paint. Which table shows possible values of w, the number of cups of white paint Sylvia uses, and r, the number of cups of red paint?

A

Pink Paint

White Paint, w (cups)	7	49	343	2,401
Red Paint, r (cups)	3	9	27	81

B

Pink Paint

White Paint, w (cups)	7	8	9	10
Red Paint, r (cups)	3	4	5	6

C

Pink Paint

White Paint, w (cups)	7	14	21	28
Red Paint, r (cups)	3	6	9	12

D

Pink Paint

White Paint, w (cups)	7	6	5	4
Red Paint, r (cups)	3	4	5	6

Item Analysis

Verb	Represent
Using or Including	Tables
Concept	Ratios
Process TEKS	6.1A, 6.1B, 6.1D, 6.1F

Notes

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TEKS 6.5B Readiness Standard
solve real-world problems to find the whole given a part and the percent, to find the part given the whole and the percent, and to find the percent given the part and the whole, including the use of concrete and pictorial models

ITEM

22 As part of a survey, 300 girls were asked to name their favorite sport. The results showed that 12 of the girls named bowling as their favorite sport. What percentage of the girls in the survey named bowling as their favorite sport?

F 4%

G 12%

H 25%

J 0.04%

Item Analysis

Verb	Solve
Using or Including	NA
Concept	Percent Problems Percent
Process TEKS	6.1A, 6.1B, 6.1F

Notes

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TEKS 6.5B Readiness Standard
solve real-world problems to find the whole given a part and the percent, to find the part given the whole and the percent, and to find the percent given the part and the whole, including the use of concrete and pictorial models

ITEM

47 In 2012 there were approximately 8,950 public libraries in the United States. A survey found that 76% of those libraries offered free access to electronic books. Based on this information, how many public libraries offered free access to electronic books in 2012?

A 8,190
B 118
C 6,802
D 760

Item Analysis	
Verb	NA
Using or Including	N/A
Concept	Percent Problems Part
Process TEKS	6.1A, 6.1B, 6.1F

Notes

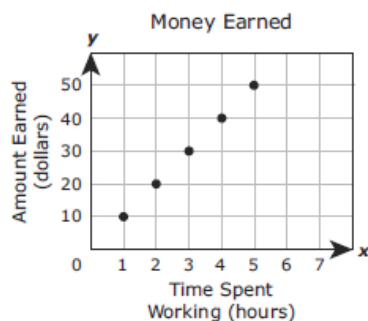G F Educators Inc.
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TEKS 6.6A Supporting Standard
identify independent and dependent quantities from tables and graphs

ITEM

14 The graph shows the amount of money earned by an employee based on the time he spent working.

Which list shows the dependent quantities in the graph?

F 10, 20, 30, 40, 50
G 1, 2, 3, 4, 5
H 11, 22, 33, 44, 55
J 101, 202, 303, 404, 505

Item Analysis	
Verb	Identify
Using or Including	Graph
Concept	Dependent Quantity
Process TEKS	6.1A, 6.1B, 6.1E, 6.1F

Notes

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TEKS 6.6B Supporting Standard
write an equation that represents the relationship between independent and dependent quantities from a table

ITEM

24 The table shows the relationship between *d*, the amount of money Alice has at the beginning of each day, and *w*, the amount of money she has after riding the bus to work.

Alice's Money

Money at the Beginning of the Day, d	Money After Riding the Bus to Work, w
$15.75	$14.50
$9.50	$8.25
$5.25	$4.00
$30.00	$28.75

Which equation represents the relationship in the table?

F $w = d + 1.25$

G $w = 14.50d + 1.25$

H $w = 15.75d − 1.25$

J $w = d − 1.25$

Item Analysis	
Verb	Write
Using or Including	NA
Concept	Equation
Process TEKS	6.1A, 6.1B, 6.1D, 6.1F

Notes

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TEKS 6.6C Readiness Standard
represent a given situation using verbal descriptions, tables, graphs, and equations in the form y = kx or y = x + b

ITEM

37 Which table shows only values that represent the following relationship between *q* and *r*?

$$r = q + 10.1$$

A

q	r
5	50.5
7	70.7
9	90.9
11	111.1

C

q	r
5	10.6
7	10.8
9	11.0
11	11.2

B

q	r
5	15.1
7	17.1
9	19.1
11	21.1

D

q	r
5	15.1
7	15.3
9	15.5
11	15.7

Item Analysis	
Verb	Represent
Using or Including	Equation to Table
Concept	$y = x + b$
Process TEKS	6.1B, 6.1D, 6.1F

Notes

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TEKS 6.6C Readiness Standard
represent a given situation using verbal descriptions, tables, graphs, and equations in the form y = kx or y = x + b

ITEM

44 The cost of downloading one song from a website is $0.99. Which equation can be used to find t, the cost in dollars of downloading n songs?

- **F** $t = 0.99 + n$
- **G** $n = 0.99 + t$
- **H** $t = 0.99n$
- **J** $n = 0.99t$

Item Analysis	
Verb	Represent
Using or Including	Verbal Description
Concept	$y = kx$
Process TEKS	**6.1A, 6.1B, 6.1D, 6.1F**

Notes

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TEKS 6.9A Supporting Standard
write one-variable, one-step equations and inequalities to represent constraints or conditions within problems

ITEM

10 Mr. Smith has a maximum of $50 to spend at a museum. A ticket to the museum costs $7. He can spend p dollars to buy other things at the museum. Which inequality can be used to find the possible values for p?

- **F** $p\ 7 > 50$
- **G** $p\ 7 < 50$
- **H** $p + 7 \geq 50$
- **J** $p + 7 \leq 50$

Item Analysis	
Verb	Write
Using or Including	NA
Concept	One-Step Inequality
Process TEKS	**6.1A, 6.1B, 6.1D, 6.1F**

Notes

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TEKS 6.9C Supporting Standard
write corresponding real-world problems given one-variable, one-step equations or inequalities

ITEM

33 Which situation **cannot** be represented by the equation $x + 10 = 45$?

A Marissa spent $45 on a hat and a shirt. The hat cost $10. What is x, the cost of the shirt in dollars?

B Nicholas rode his bike 45 miles last week. He rode 10 miles on Tuesday and the rest of the miles on Wednesday. What is x, the number of miles Nicholas rode his bike on Wednesday?

C Two players scored a total of 45 points in a game. One player scored 10 points. What is x, the number of points scored by the other player?

D There are 45 students in a group. There are also 10 adults in the group. What is x, the total number of students and adults in the group?

Item Analysis	
Verb	Write
Using or Including	NA
Concept	Real-World Problem
Process TEKS	6.1A, 6.1B, 6.1D, 6.1G

Notes

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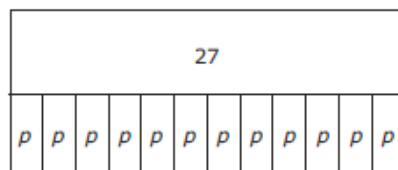*STEP IT UP*

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TEKS 6.10A Readiness Standard
model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts

ITEM

18 Holly bought a magazine subscription for a year. She paid $27. Holly wanted to find the price, p, of the subscription each month. She created the model shown to help find this price.

27											
p	p	p	p	p	p	p	p	p	p	p	p

What was the price of the subscription each month?

F $39.00

G $2.25

H $324.00

J $22.50

Item Analysis	
Verb	Solve
Using or Including	NA
Concept	One-Step Equation
Process TEKS	6.1A, 6.1B, 6.1E, 6.1F

Notes

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TEKS 6.10A Readiness Standard
model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts

ITEM

50 A student needs to collect at least 10 flowers for a science project. The student has already collected 3 flowers. The inequality shown can be used to find n, the number of flowers the student still needs.

$$n + 3 \geq 10$$

Which inequality represents the solution set for this situation?

F $n \leq 13$
G $n \geq 13$
H $n \leq 7$
J $n \geq 7$

Item Analysis	
Verb	Solve
Using or Including	NA
Concept	One-Step Inequality
Process TEKS	**6.1A, 6.1B, 6.1F**
Notes	

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TEKS 6.10B Supporting Standard
determine if the given value(s) make(s) one-variable, one-step equations or inequalities true

ITEM

31 Which equation has a solution of $\frac{2}{3}$ for n?

A $n - 1 = \frac{1}{3}$
B $16n = 24$
C $15n = 10$
D $1\frac{1}{3} + n = 3$

Item Analysis	
Verb	Determine
Using or Including	NA
Concept	Solution to Equation
Process TEKS	**6.1B, 6.1F**
Notes	

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TEKS 6.4H Readiness Standard
convert units within a measurement system, including the use of proportions and unit rates

ITEM

11 Mrs. Torres is mailing a package that weighs 12.5 pounds. The post office charges by the ounce to mail a package. How much does the package weigh in ounces?

- **A** 187 ounces
- **B** 200 ounces
- **C** 192.5 ounces
- **D** 100 ounces

Item Analysis	
Verb	Convert
Using or Including	Unit Rate
Concept	Pounds to Ounces
Process TEKS	6.1A, 6.1B, 6.1C, 6.1F
Notes	

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TEKS 6.4H Readiness Standard
convert units within a measurement system, including the use of proportions and unit rates

ITEM

39 A robot's height is 1 meter 20 centimeters. How tall is the robot in millimeters?

- **A** 1,200 millimeters
- **B** 1,020 millimeters
- **C** 120 millimeters
- **D** Not here

Item Analysis	
Verb	Convert
Using or Including	Proportions
Concept	Metric System
Process TEKS	6.1A, 6.1B, 6.1C, 6.1F
Notes	

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TEKS 6.8A Supporting Standard
extend previous knowledge of triangles and their properties to include the sum of angles of a triangle, the relationship between the lengths of sides and measures of angles in a triangle, and determining when three lengths form a triangle

ITEM

16 In triangle FGH shown below, what is the measure of ∠F in degrees?
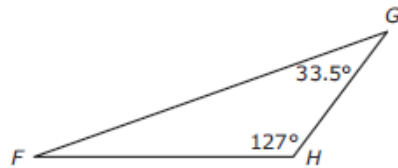
Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

Item Analysis	
Verb	Extend
Using or Including	Sume of Angles of a Triangle
Concept	Properties of Triangles
Process TEKS	6.1B, 6.1E, 6.1F

Notes

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- -

TEKS 6.8C Supporting Standard
write equations that represent problems related to the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers

ITEM

26 The table below shows the relationship between the perimeter and area of four squares.

Squares

Area, A (square units)	Perimeter, P (units)
1	4
4	8
9	12
16	16

Which equation can be used to find A, the area of a square that has a perimeter of P units?

F $A = (P \div 4) \times (P \div 4)$

G $A = (P - 4)$

H $A = (P + 4) \times (P + 4)$

J $A = P$

Item Analysis	
Verb	Write
Using or Including	NA
Concept	Area of a Square
Process TEKS	6.1B, 6.1C, 6.1D, 6.1F

Notes

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TEKS 6.8D Readiness Standard
determine solutions for problems involving the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers

ITEM

7 The rectangle below represents the base of a rectangular prism. Use the ruler provided to measure the dimensions of the rectangle to the nearest centimeter.

The height of the rectangular prism is 12 centimeters. What is the volume of the rectangular prism?

A 32 cm³

B 20 cm³

C 360 cm³

D 240 cm³

Item Analysis	
Verb	Determine Solutions
Using or Including	NA
Concept	Volume of Rectangular Prism
Process TEKS	**6.1B, 6.1C, 6.1E, 6.1F**

Notes

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TEKS 6.8D Readiness Standard
determine solutions for problems involving the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers

ITEM

48 Ms. Chen will paint a triangular tile. A drawing of the tile is shown. Use the ruler provided to measure the dimensions of the tile to the nearest centimeter.
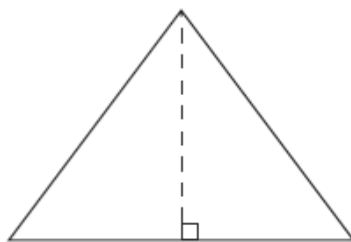
Which measurement is closest to the area of the tile in square centimeters?

F 12 cm²

G 24 cm²

H 15 cm²

J 30 cm²

Item Analysis	
Verb	Determine Solutions
Using or Including	NA
Concept	Area of a Triangle
Process TEKS	**6.1A, 6.1B, 6.1C, 6.1E, 6.1F**

Notes

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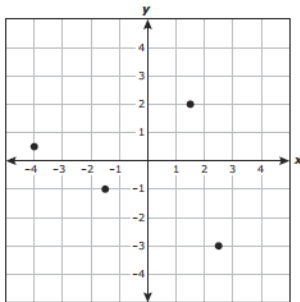STEP IT UP
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TEKS 6.11A Readiness Standard
graph points in all four quadrants using ordered pairs of rational numbers

ITEM

5 Four points are graphed on the coordinate grid.

Which ordered pair does not appear to be represented by one of these points?

A $(\frac{5}{2}, -3)$

B $(-1, -1\frac{1}{2})$

C $(\frac{3}{2}, 2)$

D $(-4, \frac{1}{2})$

Item Analysis	
Verb	Graph
Using or Including	Rational Numbers
Concept	Ordered Pairs
Process TEKS	**6.1B, 6.1E, 6.1F**

Notes

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STEP IT UP
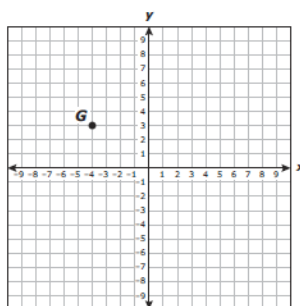**www.StepUpTEKS.com**

TEKS 6.11A Readiness Standard
graph points in all four quadrants using ordered pairs of rational numbers

ITEM

41 Benisha graphed point *G* on the coordinate grid. She will graph point *H* at a location 5 units away from point *G*.

Which ordered pair could represent the location of point *H*?

A (-4, 5)

B (-9, 8)

C (1, 3)

D (-4, -1)

Item Analysis	
Verb	Graph
Using or Including	Rational Numbers
Concept	Ordered Pairs
Process TEKS	**6.1A, 6.1B, 6.1E, 6.1F**

Notes

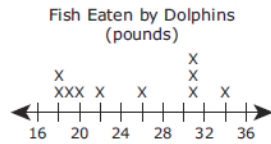**G F Educators Inc.**
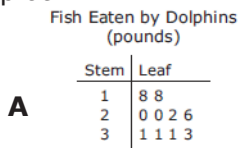*STEP IT UP*
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TEKS 6.12A Supporting Standard
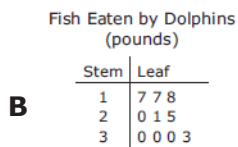represent numeric data graphically, including dot plots, stem-and-leaf plots, histograms, and box plots

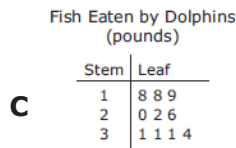**27** The line plot shows the number of pounds of fish eaten by each dolphin at a zoo.

Fish Eaten by Dolphins
(pounds)

Which stem and leaf plot best represents the data in the line plot?

A

Fish Eaten by Dolphins
(pounds)

Stem	Leaf
1	8 8
2	0 0 2 6
3	1 1 1 3

KEY
2|0 = 20 pounds

B

Fish Eaten by Dolphins
(pounds)

Stem	Leaf
1	7 7 8
2	0 1 5
3	0 0 0 3

KEY
2|0 = 20 pounds

C

Fish Eaten by Dolphins
(pounds)

Stem	Leaf
1	8 8 9
2	0 2 6
3	1 1 1 4

KEY
2|0 = 20 pounds

D

Fish Eaten by Dolphins
(pounds)

Stem	Leaf
1	8 9
2	0 2 6
3	1 4
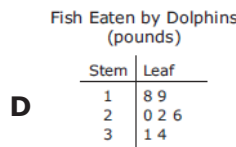
KEY
2|0 = 20 pounds

Item Analysis

Verb	Represent
Using or Including	Dot Plot/Stem and Leaf
Concept	Numerical Data
Process TEKS	6.1A, 6.1B, 6.1D, 6.1F

Notes

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TEKS 6.12C Readiness Standard
summarize numeric data with numerical summaries, including the mean and median (measures of center) and the range and interquartile range (IQR) (measures of spread), and use these summaries to describe the center, spread, and shape of the data distribution

ITEM

17 The list shows the number of licenses issued every year to lobster boats in Massachusetts for a five-year period.

$$551, 554, 529, 534, 530$$

What is the range of these data?

A 534
B 540
C 21
D 25

Item Analysis

Verb	Summarize
Using or Including	Range
Concept	Spread of Data
Process TEKS	6.1A, 6.1B, 6.1F

Notes

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TEKS 6.12C Readiness Standard
summarize numeric data with numerical summaries, including the mean and median (measures of center) and the range and interquartile range (IQR) (measures of spread), and use these summaries to describe the center, spread, and shape of the data distribution

ITEM

34 The dot plot shows the number of chess games won by each of the 20 students in a competition.

Number of Chess Games Won
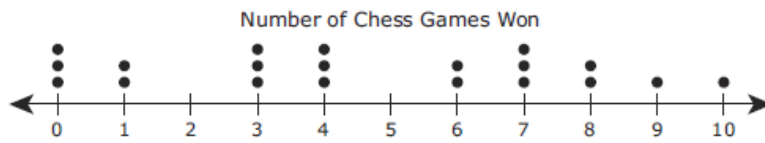
Which statement about the data is true?

F The median is 4, and the interquartile range is 10.
G The median is 4, and the interquartile range is 5.
H The median is 5, and the interquartile range is 10.
J The median is 5, and the interquartile range is 5.

Item Analysis	
Verb	Summarize
Using or Including	Meadian/IQR
Concept	Center and Spread of Data
Process TEKS	6.1A, 6.1B, 6.1E, 6.1G

Notes

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TEKS 6.12D Readiness Standard
summarize categorical data with numerical and graphical summaries, including the mode, the percent of values in each category (relative frequency table), and the percent bar graph, and use these summaries to describe the data distribution

ITEM

3 Hector surveyed all the sixth graders at his school about their favorite after-school activity. The table shows the results that were used to make a bar graph.

Favorite Activities

Activity	Number of Students
Reading	44
Sports	55
Video games	55
Music	66

Which percentage bar graph best represents the data?

A

B

C

D

Item Analysis	
Verb	Summarize
Using or Including	Percent Bar Graph
Concept	Categorical Data
Process TEKS	6.1A, 6.1B, 6.1D, 6.1F

Notes

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TEKS 6.12D Readiness Standard
summarize categorical data with numerical and graphical summaries, including the mode, the percent of values in each category (relative frequency table), and the percent bar graph, and use these summaries to describe the data distribution

43 Shemar bought a bag of marbles. He took the marbles out of the bag one at a time. He recorded the color of each marble in this tally chart.

Marbles

Color	Number of Marbles
Black	𝍸𝍸𝍸 𝍸𝍸𝍸 𝍸𝍸𝍸
Yellow	𝍸𝍸𝍸 𝍸𝍸𝍸
Green	𝍸𝍸𝍸 𝍸𝍸𝍸 II
Red	𝍸𝍸𝍸
White	𝍸𝍸𝍸 III

In which table do the percentages represent the relative frequency of these marble colors?

A Marbles

Color	Percentage of All Marbles
Black	15%
Yellow	10%
Green	12%
Red	5%
White	8%

C Marbles

Color	Percentage of All Marbles
Black	10%
Yellow	16%
Green	20%
Red	24%
White	30%

B Marbles

Color	Percentage of All Marbles
Black	15%
Yellow	25%
Green	37%
Red	42%
White	50%

D Marbles

Color	Percentage of All Marbles
Black	30%
Yellow	20%
Green	24%
Red	10%
White	16%

Item Analysis

Verb	Summarize
Using or Including	Frequency Tables
Concept	Percents of Values
Process TEKS	6.1A, 6.1B, 6.1D, 6.1F

Notes

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TEKS 6.13A Readiness Standard
interpret numeric data summarized in dot plots, stem-and-leaf plots, histograms, and box plots

ITEM

8 Students recorded the amount of liquid in fluid ounces each of them drank in one day. The box plot shows the summary of the results.

Amount of Liquid (fluid ounces)

Which statement best describes the data represented in the box plot?

F Half the students drank from 78 to 114 fluid ounces.

G The greatest number of students drank from 30 to 78 fluid ounces.

H The data represent 78 student responses.

J The mean number of fluid ounces that the students drank is 78.

Item Analysis

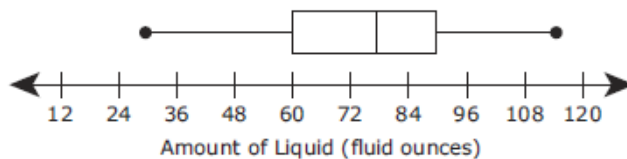| Verb	Interpret
Using or Including	NA
Concept	Box Plot
Process TEKS	6.1A, 6.1B, 6.1E, 6.1G

Notes

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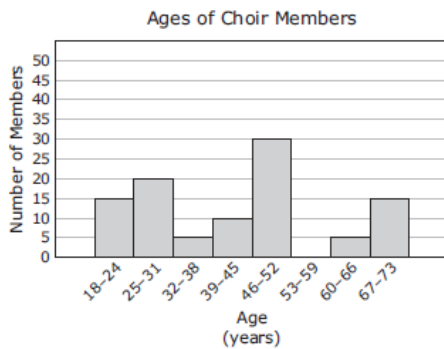STEP IT UP
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TEKS 6.13A Readiness Standard
interpret numeric data summarized in dot plots, stem-and-leaf plots, histograms, and box plots

ITEM

49 A choir director made a histogram showing the ages of the members of the choir.

Ages of Choir Members

Which statement about the data in the histogram must be true?
 A More than half the members are from 46 to 73 years old.
 B There are more men than women in the choir.
 C The choir has a total of 100 members.
 D Exactly 20 members are less than 32 years old.

Item Analysis	
Verb	Interpret
Using or Including	NA
Concept	Histogram
Process TEKS	6.1A, 6.1B, 6.1E, 6.1G

Notes

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TEKS 6.14A Supporting Standard
compare the features and costs of a checking account and a debit card offered by different local financial institutions

ITEM

21 The table shows the monthly fees for the checking accounts at two banks.

Checking Account Fees at Two Banks

Bank	Monthly Fee
Y	1% of checking account balance
Z	$5

Which statement is best supported by the information in the table?
 A The fee at Bank Y will always be less than the fee at Bank Z.
 B The fee at Bank Y will always be more than the fee at Bank Z.
 C The fee at Bank Y will be more than the fee at Bank Z only when a customer's balance is more than $500.
 D The fee at Bank Y will be more than the fee at Bank Z only when the checking account balance is less than $500.

Item Analysis	
Verb	Compare
Using or Including	NA
Concept	Checking Accounts
Process TEKS	6.1A, 6.1B, 6.1E, 6.1G

Notes

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TEKS 6.14C Supporting Standard
balance a check register that includes deposits, withdrawals, and transfers

ITEM

36 Before Nina bought groceries on April 22, she had a balance of $487.25 in her checking account. Nina wrote her transactions in her check register. She included all her transactions through the end of the day on April 23.

Nina's Check Register

Date	Description	Deposits (dollars)	Withdrawals (dollars)	Balance (dollars)
				487.25
4/22	Groceries		72.50	
4/23	Cash deposit	15.00		

Based on the transactions in Nina's check register, what is the balance in dollars and cents in her checking account at the end of the day on April 23?

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

Item Analysis

Verb	Balance
Using or Including	Deposits/Withdrawal
Concept	Check Register
Process TEKS	6.1A, 6.1B, 6.1E, 6.1F

Notes

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- -

TEKS 6.14H Supporting Standard
compare the annual salary of several occupations requiring various levels of post-secondary education or vocational training and calculate the effects of the different annual salaries on lifetime income

ITEM

29 The table shows the average annual salary for four jobs.

Average Annual Salaries

Job	Average Annual Salary (dollars)
Copywriter	55,869
Librarian	54,407
Elevator technician	71,900
Aircraft mechanic	52,975

Based on this information, how much more will an elevator technician make than a librarian over 10 years?

- **A** $174,930
- **B** $126,307
- **C** $17,493
- **D** $1,263,070

Item Analysis

Verb	Compare
Using or Including	NA
Concept	Annual Salaries
Process TEKS	6.1A, 6.1B, 6.1E, 6.1F

Notes

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Category 1
Numerical Representations and Relationships
14 Total Questions

TEKS	Item	Correct Answer	Process TEKS
6.2A classify whole numbers, integers, and rational numbers using a visual representation such as a Venn diagram to describe relationships between sets of numbers	32	F	6.1B, 6.1E, 6.1F
6.2B identify a number, its opposite, and its absolute value	NT		
6.2C locate, compare, and order integers and rational numbers using a number line	19	D	6.1A, 6.1B, 6.1E, 6.1F
6.2D order a set of rational numbers arising from mathematical and real-world contexts	15	C	6.1A, 6.1B, 6.1E, 6.1F
	45	B	6.1A, 6.1B, 6.1E, 6.1F
6.2E extend representations for division to include fraction notation such as a/b represents the same number as a ÷ b where b ≠ 0	NT		
6.4C give examples of ratios as multiplicative comparisons of two quantities describing the same attribute	NT		
6.4D give examples of rates as the comparison by division of two quantities having different attributes, including rates as quotients	23	C	6.1A, 6.1B, 6.1G
6.4E represent ratios and percents with concrete models, fractions, and decimals	35	C	6.1A, 6.1B, 6.1D, 6.1F
6.4F represent benchmark fractions and percents such as 1%, 10%, 25%, 33 1/3%, and multiples of these values using 10 by 10 grids, strip diagrams, number lines, and numbers	25	C	6.1B, 6.1D, 6.1F
6.4G generate equivalent forms of fractions, decimals, and percents using real-world problems, including problems that involve money	13	B	6.1A, 6.1B, 6.1F
	28	G	6.1A, 6.1B, 6.1F
	42	0.8	6.1A, 6.1B, 6.1F
6.5C use equivalent fractions, decimals, and percents to show equal parts of the same whole	NT		
6.7A generate equivalent numerical expressions using order of operations, including whole number exponents, and prime factorization	1	B	6.1A, 6.1B, 6.1F
	46	J	6.1B, 6.1F
6.7B distinguish between expressions and equations verbally, numerically, and algebraically	NT		
6.7C determine if two expressions are equivalent using concrete models, pictorial models, and algebraic representations	NT		
6.7D generate equivalent expressions using the properties of operations: inverse, identity, commutative, associative, and distributive properties	9	C	6.1B, 6.1F
	52	F	6.1B, 6.1F

Shaded - Readiness TEKS, NT - Not Tested
Readiness TEKS - 9/14 questions

Category 2
Computations and Algebraic Relationships
20 Total Questions

TEKS	Item	Correct Answer	Process TEKS
6.3A recognize that dividing by a rational number and multiplying by its reciprocal result in equivalent values	**6**	**F**	**6.1A, 6.1B, 6.1F**
6.3B determine, with and without computation, whether a quantity is increased or decreased when multiplied by a fraction, including values greater than or less than one	**NT**		
6.3C represent integer operations with concrete models and connect the actions with the models to standardized algorithms	**NT**		
6.3D add, subtract, multiply, and divide integers fluently	**12**	**H**	**6.1A, 6.1B, 6.1E, 6.1F**
	30	**-14**	**6.1A, 6.1B, 6.1F**
6.3E multiply and divide positive rational numbers fluently	**2**	**H**	**6.1A, 6.1B, 6.1F**
	38	**J**	**6.1A, 6.1B, 6.1F**
6.4A compare two rules verbally, numerically, graphically, and symbolically in the form of y = ax or y = x + a in order to differentiate between additive and multiplicative relationships	**20**	**J**	**6.1B, 6.1G**
6.4B apply qualitative and quantitative reasoning to solve prediction and comparison of real-world problems involving ratios and rates	**4**	**J**	**6.1A, 6.1B, 6.1F**
	40	**F**	**6.1A, 6.1B, 6.1E, 6.1F**
6.5A represent mathematical and real-world problems involving ratios and rates using scale factors, tables, graphs, and proportions	**51**	**C**	**6.1A, 6.1B, 6.1D, 6.1F**
6.5B solve real-world problems to find the whole given a part and the percent, to find the part given the whole and the percent, and to find the percent given the part and the whole, including the use of concrete and pictorial models	**22**	**F**	**6.1A, 6.1B, 6.1F**
	47	**C**	**6.1A, 6.1B, 6.1F**
6.6A identify independent and dependent quantities from tables and graphs	**14**	**F**	**6.1A, 6.1B, 6.1E, 6.1F**
6.6B write an equation that represents the relationship between independent and dependent quantities from a table	**24**	**J**	**6.1A, 6.1B, 6.1D, 6.1F**
6.6C represent a given situation using verbal descriptions, tables, graphs, and equations in the form y = kx or y = x + b	**37**	**B**	**6.1B, 6.1D, 6.1F**
	44	**H**	**6.1A, 6.1B, 6.1D, 6.1F**
6.9A write one-variable, one-step equations and inequalities to represent constraints or conditions within problems	**10**	**J**	**6.1A, 6.1B, 6.1D, 6.1F**
6.9B represent solutions for one-variable, one-step equations and inequalities on number lines	**NT**		
6.9C write corresponding real-world problems given one-variable, one-step equations or inequalities	**33**	**D**	**6.1A, 6.1B, 6.1D, 6.1G**
6.10A model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts	**18**	**G**	**6.1A, 6.1B, 6.1E, 6.1F**
	50	**J**	**6.1A, 6.1B, 6.1F**
6.10B determine if the given value(s) make(s) one-variable, one-step equations or inequalities true	**31**	**C**	**6.1B, 6.1F**

Shaded - Readiness TEKS, NT - Not Tested
Readiness TEKS - 12/20 questions

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Category 3
Geometry and Measurement
8 Total Questions

TEKS	Item	Correct Answer	Process TEKS
6.4H convert units within a measurement system, including the use of proportions and unit rates	11	B	6.1A, 6.1B, 6.1C, 6.1F
	39	A	6.1A, 6.1B, 6.1C, 6.1F
6.8A extend previous knowledge of triangles and their properties to include the sum of angles of a triangle, the relationship between the lengths of sides and measures of angles in a triangle, and determining when three lengths form a triangle	16	19.5	6.1B, 6.1E, 6.1F
6.8B model area formulas for parallelograms, trapezoids, and triangles by decomposing and rearranging parts of these shapes	NT		
6.8C write equations that represent problems related to the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers	26	F	6.1B, 6.1C, 6.1D, 6.1F
6.8D determine solutions for problems involving the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers	7	D	6.1B, 6.1C, 6.1E, 6.1F
	48	F	6.1A, 6.1B, 6.1C, 6.1E, 6.1F
6.11A graph points in all four quadrants using ordered pairs of rational numbers	5	B	6.1B, 6.1E, 6.1F
	41	C	6.1A, 6.1B, 6.1E, 6.1F

Shaded - Readiness TEKS, NT - Not Tested
Readiness TEKS - 6/8 questions

Category 4
Data Analysis and Personal Finance
10 Total Questions

TEKS	Item	Correct Answer	Process TEKS
6.12A represent numeric data graphically, including dot plots, stem-and-leaf plots, histograms, and box plots	**27**	**C**	**6.1A, 6.1B, 6.1D, 6.1F**
6.12B use the graphical representation of numeric data to describe the center, spread, and shape of the data distribution	**NT**		
6.12C summarize numeric data with numerical summaries, including the mean and median (measures of center) and the range and interquartile range (IQR) (measures of spread), and use these summaries to describe the center, spread, and shape of the data distribution	**17**	**D**	**6.1A, 6.1B, 6.1F**
	34	**G**	**6.1A, 6.1B, 6.1E, 6.1G**
6.12D summarize categorical data with numerical and graphical summaries, including the mode, the percent of values in each category (relative frequency table), and the percent bar graph, and use these summaries to describe the data distribution	**3**	**C**	**6.1A, 6.1B, 6.1D, 6.1F**
	43	**D**	**6.1A, 6.1B, 6.1D, 6.1F**
6.13A interpret numeric data summarized in dot plots, stem-and-leaf plots, histograms, and box plots	**8**	**F**	**6.1A, 6.1B, 6.1E, 6.1G**
	49	**C**	**6.1A, 6.1B, 6.1E, 6.1G**
6.13B distinguish between situations that yield data with and without variability	**NT**		
6.14A compare the features and costs of a checking account and a debit card offered by different local financial institutions	**21**	**C**	**6.1A, 6.1B, 6.1E, 6.1G**
6.14B distinguish between debit cards and credit cards	**NT**		
6.14C balance a check register that includes deposits, withdrawals, and transfers	**36**	**429.75**	**6.1A, 6.1B, 6.1E, 6.1F**
6.14E describe the information in a credit report and how long it is retained	**NT**		
6.14F describe the value of credit reports to borrowers and to lenders	**NT**		
6.14G explain various methods to pay for college, including through savings, grants, scholarships, student loans, and work-study	**NT**		
6.14H compare the annual salary of several occupations requiring various levels of post-secondary education or vocational training and calculate the effects of the different annual salaries on lifetime income	**29**	**A**	**6.1A, 6.1B, 6.1E, 6.1F**

Shaded - Readiness TEKS, NT - Not Tested
Readiness TEKS - 6/10 questions