

# Texas Assessment of Knowledge and Skills

**Grade: 05**

**Subject: Mathematics**

**Administration: Spring 2003**

**Note: Measurement questions may have had scale altered in duplication.**

**Objective 1:** The student will demonstrate an understanding of numbers, operations, and quantitative reasoning.

**(5.3) Number, operation, and quantitative reasoning.** The student adds, subtracts, multiplies, and divides to solve meaningful problems. The student is expected to

**(B) use multiplication to solve problems involving whole numbers (no more than three digits times two digits without technology);**

**1** Stylists at a hair salon charge \$26 for each haircut. If they gave 63 haircuts, how much money did they collect, not including tips?

- A** \$89
- B** \$504
- C** \$1,538
- D** \$1,638

**(5.1) Number, operation, and quantitative reasoning.** The student uses place value to represent whole numbers and decimals. The student is expected to

**(B) use place value to read, write, compare, and order decimals through the thousandths place.**

**4** Some of the greatest long-jump distances by Olympic athletes are listed in the table below.

Long-Jump Distances

Year	Distance (meters)
1968	8.90
1976	8.35
1988	8.72
1992	8.67

According to this table, in which year was the greatest long-jump distance recorded?

- F** 1968
- G** 1976
- H** 1988
- J** 1992

## 5-Objective 1

**(5.4) Number, operation, and quantitative reasoning.** The student estimates to determine reasonable results. The student is expected to

**(A) round whole numbers and decimals through tenths to approximate reasonable results in problem situations;**

7 The table shows the number of tickets sold for the first 5 games of the football season.

Ticket Sales

Game	Number Sold
First	263
Second	198
Third	303
Fourth	279
Fifth	234

About how many tickets were sold for the first 5 games?

- A 800
- B 1,000
- C 1,300
- D 1,500

**5.3(D) identify prime factors of a whole number and common factors of a set of whole numbers;**

13 Which group shows the prime factorization of the number 104?

- A  $2 \times 2 \times 2 \times 13$
- B  $2 \times 4 \times 13$
- C  $4 \times 26$
- D  $2 \times 2 \times 26$

## 5-Objective 1

**5.1(A) use place value to read, write, compare, and order whole numbers through the billions place;**

**15** According to a report published in 1999, the population of Dallas was 1,063,292. What does the 6 in this number represent?

- A Six thousand
- B Sixty thousand
- C Sixty-three thousand
- D Six hundred thousand

**5.3(A) use addition and subtraction to solve problems involving whole numbers and decimals;**

**21** Caleb and his brother collect seashells. Caleb has 468 seashells, and his brother has 263. How many more seashells does Caleb need to collect in order to reach his goal of 750 seashells?

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

**(5.2) Number, operation, and quantitative reasoning. The student uses fractions in problem-solving situations. The student is expected to**

**(B) compare two fractional quantities in problem-solving situations using a variety of methods, including common denominators;**

**27** Wanda is watering plants for her neighbor. She gives each plant a little less than  $\frac{1}{2}$  cup of water once a week. Which amount is less than  $\frac{1}{2}$  cup?

- A  $\frac{3}{6}$  c
- B  $\frac{3}{7}$  c
- C  $\frac{4}{6}$  c
- D  $\frac{4}{7}$  c

## 5-Objective 1

**5.3(E) model and record addition and subtraction of fractions with like denominators in problem solving situations.**

**33** Dora's family bought a bag of oranges. There are 6 people in Dora's family. If they ate  $\frac{3}{8}$  of the oranges, what fraction of the oranges remained?

**A**  $\frac{9}{8}$

**B**  $\frac{5}{8}$

**C**  $\frac{3}{14}$

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

**5.3(A) use addition and subtraction to solve problems involving whole numbers and decimals;**

**38** Alaska, the largest state in the United States, has an area of 656,424 square miles. Rhode Island, the smallest state, has an area of 1,545 square miles. What is the difference between the areas of these two states?

**F** 501,924 sq mi

**G** 654,879 sq mi

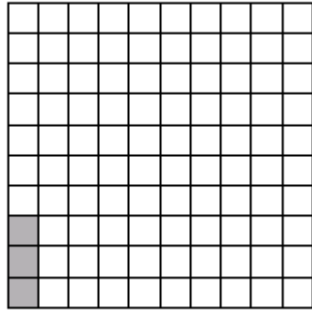
**H** 655,879 sq mi

**J** 657,969 sq mi

## 5-Objective 1

5.2(C) use models to relate decimals to fractions that name tenths, hundredths, and thousandths.

39 What part of the model is shaded?



- A 0.003
- B 0.03
- C 0.3
- D 3.0

5.2(A) generate equivalent fractions;

40 Marcus and Joe are placing books on the library shelves. They have completed  $\frac{2}{3}$  of the job so far. Which fraction is equivalent to  $\frac{2}{3}$  ?

- F  $\frac{2}{6}$
- G  $\frac{2}{4}$
- H  $\frac{4}{6}$
- J  $\frac{3}{2}$

**5-Objective 2:** The student will demonstrate an understanding of patterns, relationships, and algebraic reasoning.

**(5.6) Patterns, relationships, and algebraic thinking.** The student describes relationships mathematically. The student is expected to

**(A) select from and use diagrams and number sentences to represent real-life situations.**

**3** Marcy bought 6 apples priced at \$0.35 each. She used a coupon worth \$0.50 off the total cost. Which number sentence can be used to find how much money Marcy needed in order to buy the apples?

- A  $(6 \times 0.35) - 0.50 = 1.60$
- B  $(6 + 0.35) + 0.50 = 6.85$
- C  $(6 - 0.35) + 0.50 = 6.15$
- D  $(6 \times 0.50) - 0.35 = 2.65$

**5.6(A) select from and use diagrams and number sentences to represent real-life situations.**

**9** A concert area was set up with 16 rows of chairs. Each row had 12 chairs. In addition, there were 9 chairs set up on the stage. Which expression can be used to find how many chairs there were in all?

- A  $(12 \times 16) + (12 \times 9)$
- B  $(16 + 12) + 9$
- C  $(16 \times 12) + (16 \times 9)$
- D  $(16 \times 12) + 9$

**(5.5) Patterns, relationships, and algebraic thinking.** The student makes generalizations based on observed patterns and relationships. The student is expected to

**(B) use lists, tables, charts, and diagrams to find patterns and make generalizations such as a procedure for determining equivalent fractions;**

**20** The numbers below form a pattern.  
**23, 27, 33, 37, 43, 47, ...**

Which of the following numbers will fit the pattern when it is extended?

- F 51
- G 78
- H 104
- J 123

## 5-Objective 2

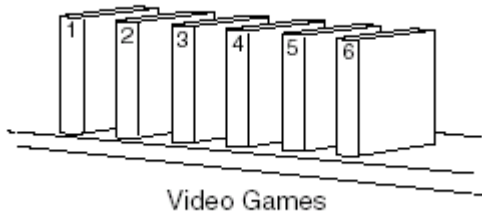
**5.5(C) identify prime and composite numbers using [concrete] models and patterns in factor pairs.**

**22** Which is a prime factor of the composite number 18?

- F** 3
- G** 5
- H** 6
- J** 9

**5.5(A) use [concrete objects or] pictures to make generalizations about determining all possible combinations;**

**26** Amy has 6 video games, as shown below. She plans to play 2 of these games today, and the order in which she plays them is not important.



How many different combinations of 2 video games are possible?

- F** 15
- G** 12
- H** 5
- J** 4

## 5-Objective 2

**5.5(B) use lists, tables, charts, and diagrams to find patterns and make generalizations such as a procedure for determining equivalent fractions;**

**32** The table shows the amount of water that Nicholas drinks over a certain number of days.

Water That Nicholas Drinks

Number of Days	Ounces of Water (total)
3	144
4	192
6	288
7	336

If this pattern continues, how many ounces of water will he drink over 9 days?

- F** 240 oz
- G** 345 oz
- H** 384 oz
- J** 432 oz

**5.6A) select from and use diagrams and number sentences to represent real-life situations.**

**34** Veronica is packing 60 cookies for a class picnic. She packs 6 cookies in each bag. Which number sentence can be used to find the number of bags,  $b$ , that she will need?

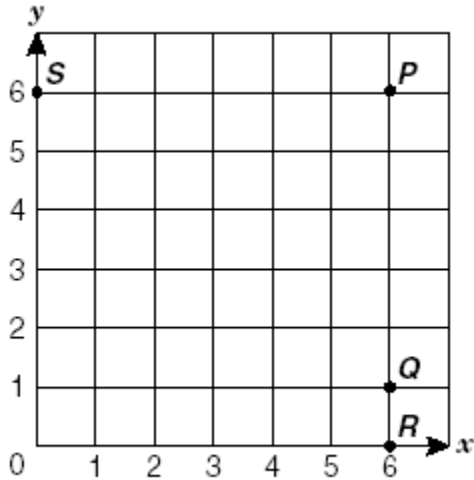
- F**  $60 \times 6 = b$
- G**  $60 + 6 = b$
- H**  $60 \div 6 = b$
- J**  $60 - 6 = b$

**5-Objective 3:** The student will demonstrate an understanding of geometry and spatial reasoning.

**(5.9) Geometry and spatial reasoning.** The student recognizes the connection between ordered pairs of numbers and locations of points on a plane. The student is expected to

**(A) locate and name points on a coordinate grid using ordered pairs of whole numbers.**

2 Which point is located at  $(6, 0)$ ?



- F Point *P*
- G Point *Q*
- H Point *R*
- J Point *S*

**(5.7) Geometry and spatial reasoning.** The student generates geometric definitions using critical attributes. The student is expected to

**(B) use critical attributes to define geometric shapes or solids.**

10 Which of these shapes could never have perpendicular lines?

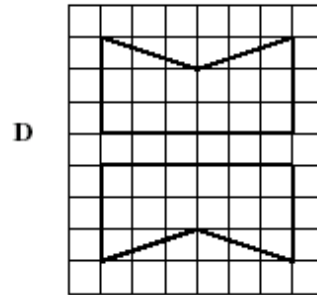
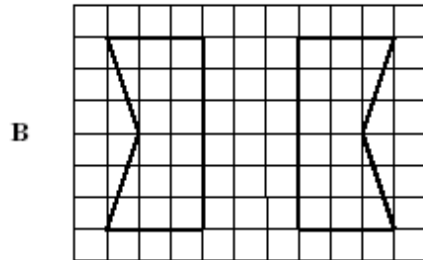
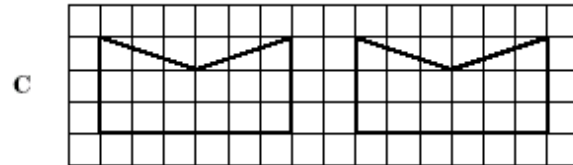
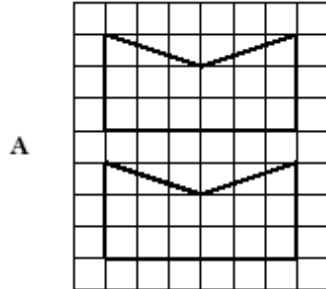
- F Square
- G Rectangle
- H Triangle
- J Circle

### 5-Objective 3

(5.8) Geometry and spatial reasoning. The student models transformations. The student is expected to

(A) sketch the results of translations, rotations, and reflections;

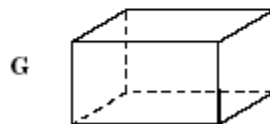
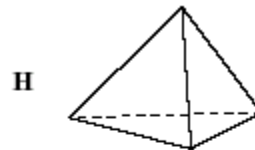
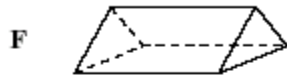
11 Which of these does **NOT** show a reflection?



5.7(B) use critical attributes to define geometric shapes or solids.

(B) use critical attributes to define geometric shapes or solids.

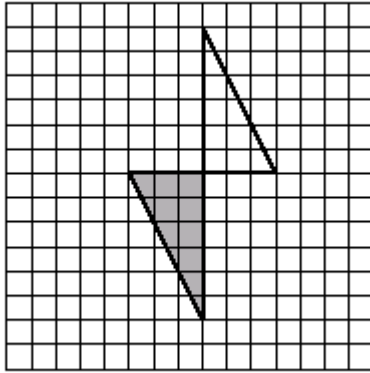
18 Which of these figures has 2 more vertices than faces?



### 5-Objective 3

**5.8(B) describe the transformation that generates one figure from the other when given two congruent figures.**

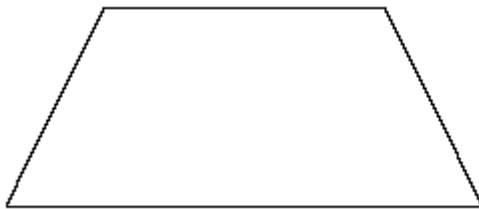
**23** Which transformation of the shaded figure is represented in the diagram?



- A Reflection
- B Translation
- C Rotation
- D Not Here

**5.7(A) identify critical attributes including parallel, perpendicular, and congruent parts of geometric shapes and solids;**

**35** A trapezoid is shown below.



Which statement about the trapezoid is true?

- A The trapezoid has 3 acute angles.
- B The trapezoid has 2 sides that are parallel lines.
- C The trapezoid has 2 right angles.
- D The trapezoid has 3 obtuse angles.

## 5-Objective 3

5.9(A) locate and name points on a coordinate grid using ordered pairs of whole numbers.

43 The graph shows some areas of a public library.



Which ordered pair best represents the point on the graph labeled “Magazines”?

- A (1, 4)
- B (3, 6)
- C (4, 1)
- D (5, 4)

**5-Objective 4:** The student will demonstrate an understanding of the concepts and uses of measurement.

**(5.11) Measurement.** The student applies measurement concepts. The student is expected to

**A) measure to solve problems involving length (including perimeter), weight, capacity, time, temperature, and area;**

**8** The leather band of Jaime's watch is broken. He needs a new watchband that measures  $5 \frac{1}{2}$  inches long. Use the ruler on the Mathematics Chart to measure the line segment under each watchband shown below. Which watchband is  $5 \frac{1}{2}$  inches long?

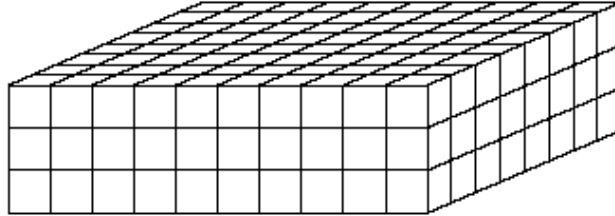


## 5-Objective 4

**(5.10) Measurement.** The student selects and uses appropriate units and procedures to measure volume. The student is expected to

**(A) measure volume using [concrete] models of cubic units.**

**14** A rectangular prism is shown below.



What is the volume of this rectangular prism?

- F** 240 cubic units
- G** 110 cubic units
- H** 83 cubic units
- J** 54 cubic units

**5.11(B) describe numerical relationships between units of measure within the same measurement system such as an inch is one-twelfth of a foot.**

**16** How many millimeters are equivalent to 400 centimeters?

- F** 0.4 mm
- G** 4 mm
- H** 40 mm
- J** Not Here

**5.11(B) describe numerical relationships between units of measure within the same measurement system such as an inch is one-twelfth of a foot.**

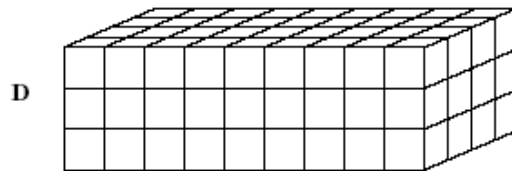
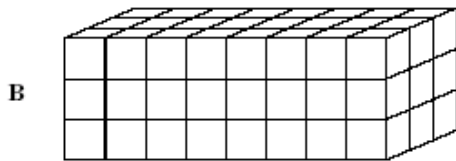
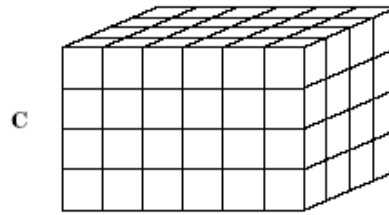
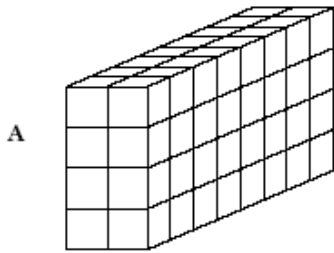
**24** Mr. Perkins needs 16 ounces of milk for a recipe. How many cups of milk does he need for the recipe?

- F** 2 c
- G** 4 c
- H** 8 c
- J** Not Here

## 5-Objective 4

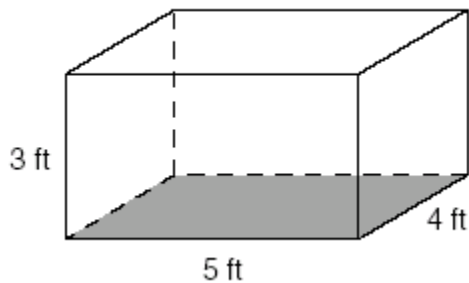
5.10(A) measure volume using [concrete] models of cubic units.

25 Which of these rectangular prisms has a volume of 96 cubic units?



5.11(A) measure to solve problems involving length (including perimeter), weight, capacity, time, temperature, and area;

28 A rectangular rabbit cage is shown below.



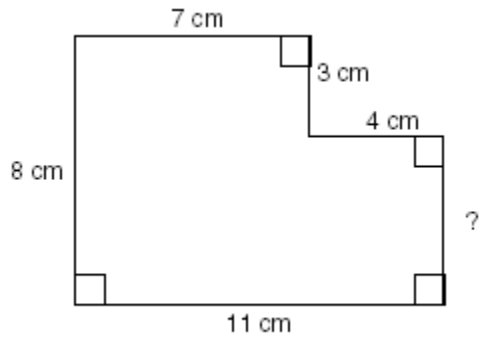
What is the perimeter of the bottom of the rabbit cage?

- F 12 feet
- G 16 feet
- H 18 feet
- J 20 feet

## 5-Objective 4

5.11(A) measure to solve problems involving length (including perimeter), weight, capacity, time, temperature, and area;

37 The figure below is missing a measurement for one line segment.



What is the missing measurement?

- A 1 centimeter
- B 4 centimeters
- C 5 centimeters
- D 8 centimeters

**5-Objective 5:** The student will demonstrate an understanding of probability and statistics.

(5.13) Probability and statistics. The student solves problems by collecting, organizing, displaying, and interpreting sets of data. The student is expected to

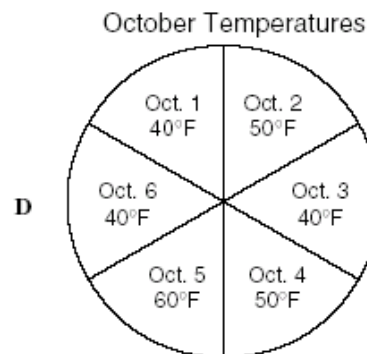
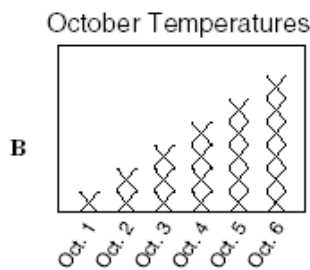
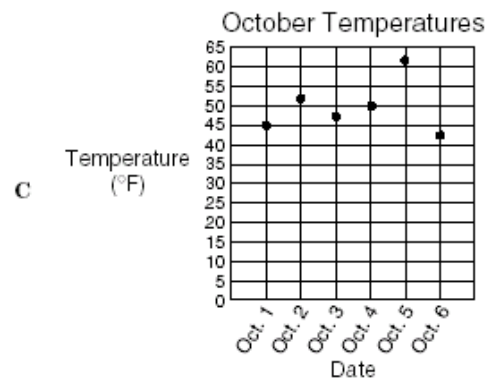
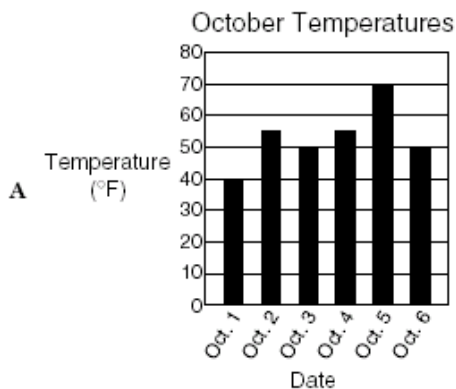
(C) graph a given set of data using an appropriate graphical representation such as a picture or line.

5 Some fifth-grade students recorded the temperature outside on 6 days in October. The data are shown in the table below.

October Temperatures

Date	Temperature (°F)
Oct. 1	45
Oct. 2	52
Oct. 3	48
Oct. 4	50
Oct. 5	61
Oct. 6	43

Which is the most appropriate graph of the data listed in the table?



## 5-Objective 5

(5.12) Probability and statistics. The student describes and predicts the results of a probability experiment. The student is expected to

(A) use fractions to describe the results of an experiment;

19 Carmen recorded the colors of the first 24 cars that drove by her house Saturday morning. The table shows the data she collected.

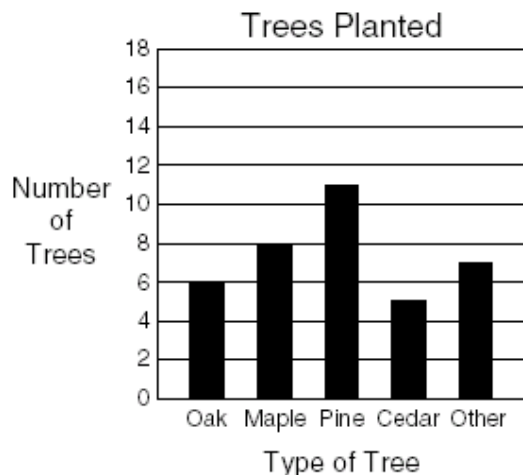
Color	White	Black	Red	Blue	Green	Other
Number of Cars	4	6	2	5	4	3

Which fraction represents the number of black cars that she counted?

- A  $\frac{1}{3}$
- B  $\frac{1}{4}$
- C  $\frac{1}{5}$
- D  $\frac{1}{6}$

5.13(B) describe characteristics of data presented in tables and graphs including the shape and spread of the data and the middle number;

30 The graph below shows the number of trees planted at a park last year.



Which statement about the data shown on the graph is **NOT** true?

- F A total of 37 trees were planted last year.
- G The median number of trees planted was 11.
- H There were 3 more maple trees than cedar trees planted.
- J The range of the data is 6.

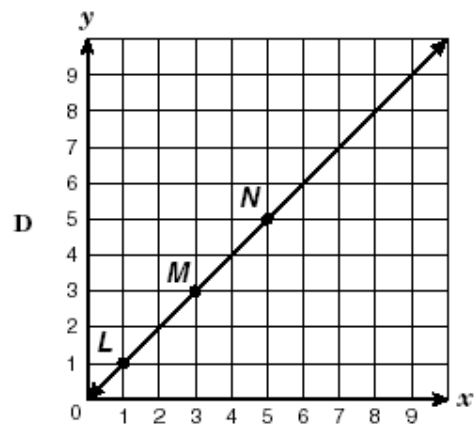
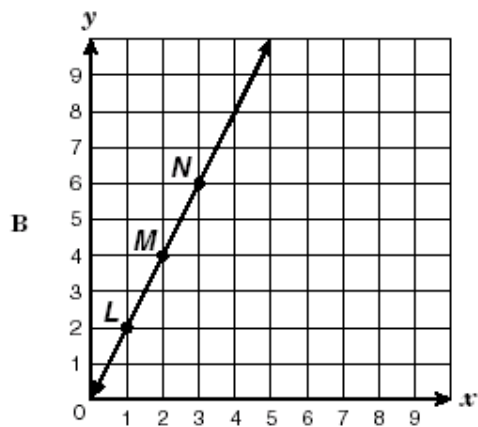
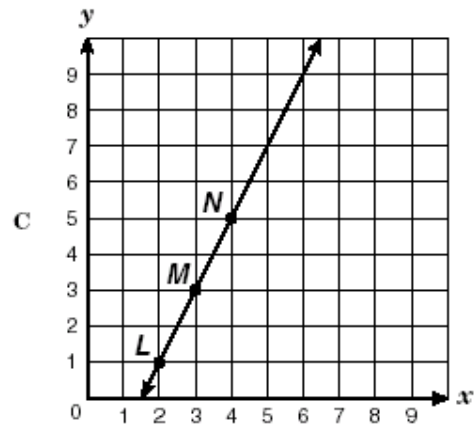
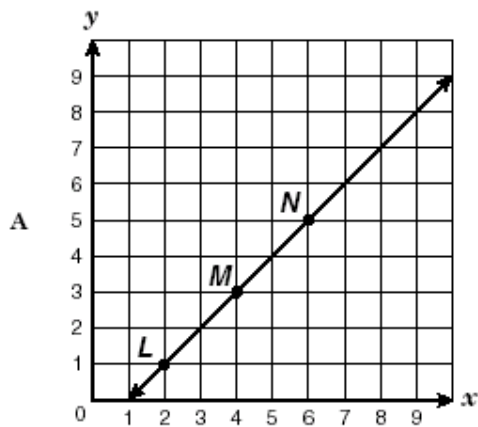
## 5-Objective 5

5.13(A) use tables of related number pairs to make line graphs;

41 The table below shows the coordinates of 3 points.

Point	<i>L</i>	<i>M</i>	<i>N</i>
<i>x</i>	2	4	6
<i>y</i>	1	3	5

Which graph shows the line containing these 3 points?



**5-Objective 6:** The student will demonstrate an understanding of the mathematical processes and tools used in problem solving.

**(5.14) Underlying processes and mathematical tools.** The student applies Grade 5 mathematics to solve problems connected to everyday experiences and activities in and outside of school. The student is expected to

**(A) identify the mathematics in everyday situations;**

6 Wilma ran 4 miles. She wants to find her running time per mile in minutes. What additional information does she need?

- F The number of minutes that she ran
- G The number of feet in 4 miles
- H The number of laps in 1 mile
- J The number of laps that she ran

**(5.16) Underlying processes and mathematical tools.** The student uses logical reasoning to make sense of his or her world. The student is expected to

**(A) make generalizations from patterns or sets of examples and nonexamples.**

12 Look for the pattern in the sequence of numbers below.

25, 32, 28, 35, 31, 38

Which rule describes this pattern best?

- F Add 25, subtract 4
- G Add 13, subtract 7
- H Add 7, subtract 4
- J Add 4, subtract 7

**5.14(B) use a problem-solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness;**

17 Olivia bought some candy for \$0.58. She received \$0.42 in change. What is the least number of coins she could have received?

- A 4
- B 5
- C 6
- D 7

## 5-Objective 6

**5.14(C)** select or develop an appropriate problem-solving strategy, including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a problem.

**29** On a class field trip, there was 1 adult for every 8 students. If a total of 54 students and adults went on the trip, how many were students?

- A 46
- B 47
- C 48
- D 62

**5.14(B)** use a problem-solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness;

**31** Trent is 5 feet tall. His sister Elise is 30 inches tall. What fractional part of Trent's height is Elise's height?

- A  $\frac{1}{6}$
- B  $\frac{1}{3}$
- C  $\frac{1}{2}$
- D  $\frac{2}{3}$

## 5-Objective 6

**5.14(C) select or develop an appropriate problem-solving strategy, including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a problem.**

**36** Some friends went to a movie theater by different routes. It took Malcolm twice as long as Julie to get to the theater. It took Alex 5 minutes longer than it took Julie. Which table shows a reasonable set of travel times for the 3 friends' routes?

**F**

Person	Time
Malcolm	18
Julie	9
Alex	13

**G**

Person	Time
Malcolm	16
Julie	10
Alex	15

**H**

Person	Time
Malcolm	18
Julie	9
Alex	14

**J**

Person	Time
Malcolm	17
Julie	10
Alex	14

## 5-Objective 6

5.14A) identify the mathematics in everyday situations;

42 An advertisement is shown below.



Which problem matches this advertisement?

**F** The regular prices of 2 kinds of phones are \$20 and \$39. If Ms. Chung buys 1 of each kind of phone, what will be the total cost of the phones?

**G** The regular price of a phone is \$39. The phone is on sale for 20% off the regular price. What is the sale price of the phone?

**H** The regular price of a phone is \$20. The phone is on sale this week for 39% off the regular price. What is the sale price of the phone?

**J** The regular price of a phone is \$39. If Ms. Chung buys 1 phone at the regular price, the second phone will cost 20% less. What will be the total cost of the phones?

**(5.15) Underlying processes and mathematical tools. The student communicates about Grade 5 mathematics using informal language. The student is expected to**

**(B) relate informal language to mathematical language and symbols.**

44 Max is packing books into boxes. Each box can hold 12 books. Which number sentence can be used to find the total number of boxes that he needs in order to pack 84 books?  
library.

**F**  $84 \div 12 = \square$

**G**  $84 - \square = 12$

**H**  $84 + 12 = \square$

**J**  $\square \div 12 = 84$

# Texas Assessment of Knowledge and Skills - Answer Key

Grade: 05  
Subject: Mathematics  
Administration: Spring 2003

Item Number	Correct Answer	Objective Measured	Student Expectations
01	D	01	5.3 (B)
02	H	03	5.9 (A)
03	A	02	5.6 (A)
04	F	01	5.1 (B)
05	C	05	5.13 (C)
06	F	06	5.14 (A)
07	C	01	5.4 (A)
08	H	04	5.11 (A)
09	D	02	5.6 (A)
10	J	03	5.7 (B)
11	A	03	5.8 (A)
12	H	06	5.16 (A)
13	A	01	5.3 (D)
14	F	04	5.10 (A)
15	B	01	5.1 (A)
16	J	04	5.11 (B)
17	B	06	5.14 (B)
18	G	03	5.7 (B)
19	B	05	5.12 (A)
20	J	02	5.5 (B)
21	282	01	5.3 (A)
22	F	02	5.5 (C)
23	C	03	5.8 (B)
24	F	04	5.11 (B)
25	C	04	5.10 (A)
26	F	02	5.5 (A)
27	B	01	5.2 (B)
28	H	04	5.11 (A)
29	C	06	5.14 (C)
30	G	05	5.13 (B)
31	C	06	5.14 (B)
32	J	02	5.5 (B)
33	B	01	5.3 (E)
34	H	02	5.6 (A)
35	B	03	5.7 (A)
36	H	06	5.14 (C)
37	C	04	5.11 (A)
38	G	01	5.3 (A)
39	B	01	5.2 (C)
40	H	01	5.2 (A)
41	A	05	5.13 (A)
42	G	06	5.14 (A)
43	C	03	5.9 (A)
44	F	06	5.15 (B)