



# The Pennsylvania System of School Assessment



2006 – 2007

## **Mathematics Item and Scoring Sampler** Grade 6

Pennsylvania Department of Education Bureau of Assessment and Accountability 2006–2007

# MATHEMATICS

## GRADE 6 MATHEMATICS MULTIPLE-CHOICE ITEMS

During an assessment, students would not be permitted to use a calculator on items 1–3.

### A.1.1.1

1. What is 1% represented as a fraction?

A  $\frac{1}{1}$  100%

B  $\frac{1}{10}$  10%

C  $\frac{1}{100}$  \*

D  $\frac{1}{1000}$  0.1%

### A.3.1.1

2. Varsha had \$79.80. He bought the following items:

Item	Price (including tax)
lamp	\$23.88
stapler	\$ 8.14
3-hole punch	\$ 4.59
pencil holder	\$ 3.30
journal	\$16.20

Which is the **closest estimate** to the amount of money he had left over after buying the items?

A \$20.00 rounded each to nearest 5

B \$21.00 rounded all numbers up

C \$24.00 \*

D \$26.00 rounded all numbers down

### A.3.2.1

3. Solve:

$$12 \times \frac{1}{4}$$

A 3 \*

B 4 taken from  $\frac{1}{4}$

C  $11\frac{3}{4}$   $12 - \frac{1}{4}$

D 48  $12 \times 4$

# MATHEMATICS

## A.1.1.4

4. Shawna's jump rope was  $6\frac{2}{3}$  feet long.  
Which fraction is equivalent to this length?

- A  $\frac{8}{3}$  feet  $\frac{(6+2)}{3}$
- B  $\frac{11}{3}$  feet  $\frac{(3+6+2)}{3}$
- C  $\frac{12}{3}$  feet  $6 \times \frac{2}{3}$
- D  $\frac{20}{3}$  feet \*

## A.1.2.1

5. The table below shows the weights of several objects.

**Weights of Objects**

Object	Weight (in ounces)
1	3.511
2	2.998
3	3.091
4	3.089

Which object has the **greatest** weight?

- A object 1 \*
- B object 2
- C object 3
- D object 4

## A.1.3.1

6. What is the greatest common factor (GCF) of 46 and 42?

- A 2 \*
- B 4 *common 1st digit*
- C 6 *digit in 46; factor of 42*
- D 7 *factor of 42*

## B.1.1.1

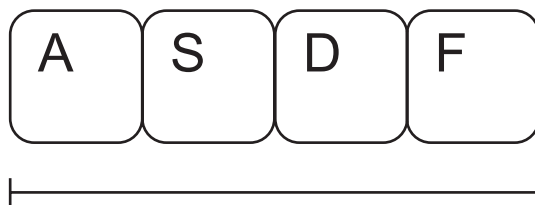
7. Jill arrived at her grandmother's house at 8:03 A.M. on May 18. Jill left her grandmother's house on May 20 at 1:00 P.M. How long was Jill at her grandmother's house?

- A 5 hours 3 minutes *8:00 to 1:00 + 3 minutes*
- B 7 hours 3 minutes *8:03 - 1 hour*
- C 28 hours 57 minutes *8:03 to 1:00 + 1 day*
- D 52 hours 57 minutes \*

# MATHEMATICS

## B.2.1.1

8. Sue Lee looked at 4 keys on her computer keyboard.



Using your ruler, what is the total length, in inches (in.), of the keys?

- A  $1\frac{3}{4}$  in.
- B  $2\frac{3}{8}$  in.
- C  $2\frac{1}{2}$  in.
- D  $2\frac{3}{4}$  in. \*

## B.2.2.1

9. The rectangular calendar on Ted's wall is 12 inches long and 10 inches wide. What is the perimeter of the calendar?

- A 22 inches
- B 44 inches \*
- C 88 inches
- D 120 inches

## B.2.3.1

10. Which type of angle has the **greatest** number of degrees?

- A acute
- B obtuse
- C right
- D straight \*

# MATHEMATICS

## C.1.1.1

11. Which shape has the **greatest** number of sides?

A decagon \*

B pentagon

C heptagon

D quadrilateral

## C.1.1.2

12. Lindsey's triangle has angles that measure  $90^\circ$ ,  $45^\circ$ , and  $45^\circ$ . What type of triangle must this be?

A acute

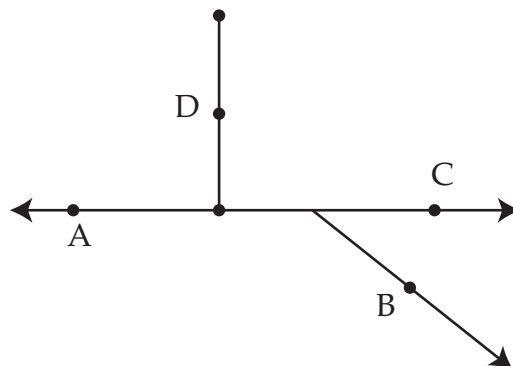
B obtuse

C scalene

D isosceles \*

## C.1.2.2

Use the drawing below to answer question 13.



13. Which point is on just a line segment?

A point A

B point B

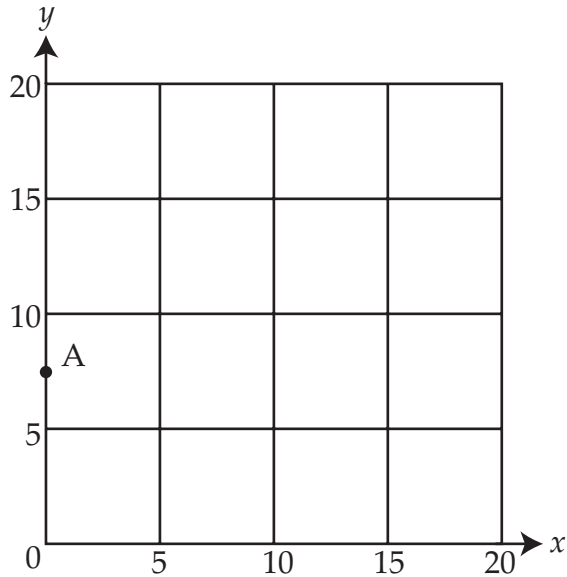
C point C

D point D \*

# MATHEMATICS

## C.3.1.1

Use the coordinate plane below to answer question 14.



14. What is the location of point A?

- A (0, 5.5)
- B (0, 2.5)
- C (7.5, 0)
- D (0, 7.5) \*

## D.1.1.1

15. Luis wrote a series of numbers based on a pattern.

60, 30, 36, 18, 24, 12, 18,   ? ,   ?

The pattern continues. What should be the next 2 numbers in his series?

A 9, 15 \*

B 9, 24  $\frac{18}{2}; 18 + 6$

C 24, 18  $18 + 6; 12 + 6$

D 24, 30  $18 + 6; 12 + 18$

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## D.1.2.1

16. A baker charged \$0.69 for one bagel. He gave a \$0.15 discount for each dozen bagels purchased. Which chart shows this information?

A

Bagel Prices	
Number of Bagels	Price
1	\$ 0.69
6	\$ 4.14
12	\$ 8.28
24	\$16.56

B

Bagel Prices	
Number of Bagels	Price
1	\$ 0.69
6	\$ 4.14
12	\$ 8.13
24	\$16.11

C

Bagel Prices	
Number of Bagels	Price
1	\$0.69
6	\$1.23
12	\$2.31
24	\$4.47

D

Bagel Prices	
Number of Bagels	Price
1	\$ 0.69
6	\$ 4.14
12	\$ 8.13
24	\$16.26

\*

## D.2.1.1

17. Which operation should be used to solve  $3x = 36$  for  $x$ ?

- A add 3 to both sides
- B subtract 3 from both sides
- C divide both sides by 3 \*
- D multiply both sides by 3

## D.2.1.2

18. The equation  $t \div 4 = 24$  can be used to find Tom's age ( $t$ ). How old is Tom?

- A 6
- B 20
- C 28
- D 96 \*

# MATHEMATICS

## D.2.2.1

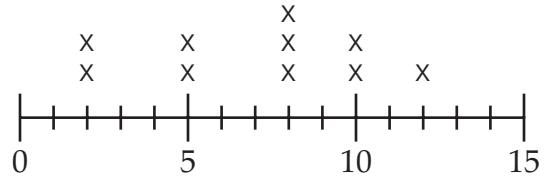
19. Dave has 14 shirts. He has 6 fewer shirts than Cal. Which expression represents the number of shirts ( $c$ ) that Cal has?

- A  $c + 6 = 14$
- B  $c - 6 = 14$  \*
- C  $c \times 6 = 14$
- D  $c = 6 - 14$

## E.1.1.1

20. The line plot below shows how many hours of homework 10 students had in one week.

**Hours of Homework in One Week**



How many hours of homework did they have in all?

- A 30
- B 37
- C 70 \*
- D 80



# MATHEMATICS

## E.1.1.2

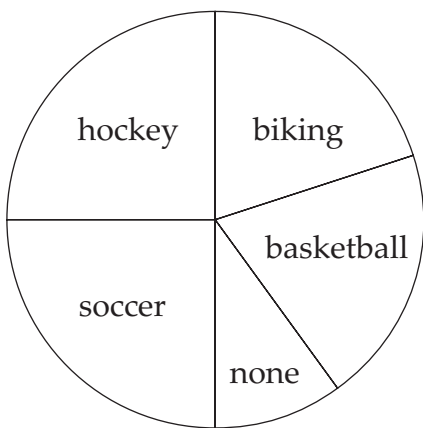
21. Devon recorded the results of a survey of 100 students in the table below.

**Favorite Sport**

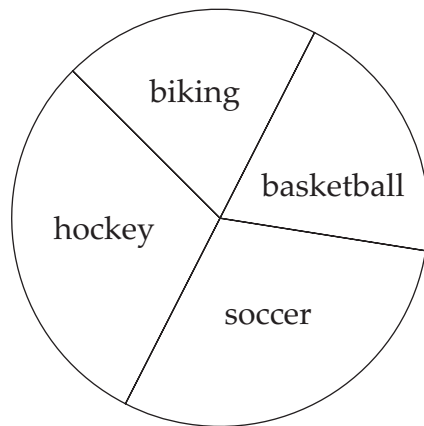
Sport	Percent of Students
none	10%
biking	20%
hockey	25%
soccer	25%
basketball	20%

Which graph correctly displays this information?

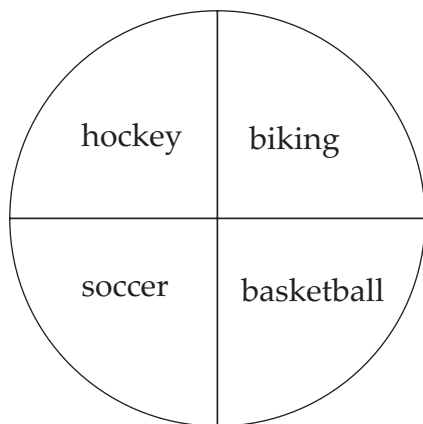
**A**                      **Favorite Sport**                      \*



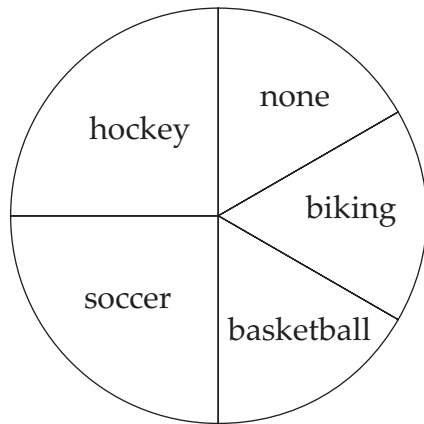
**B**                      **Favorite Sport**



**C**                      **Favorite Sport**



**D**                      **Favorite Sport**



# MATHEMATICS

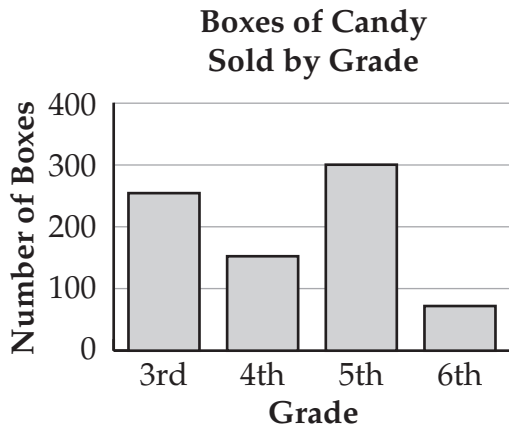
## E.1.1.3

22. Students in 4 grades sold boxes of candy to raise money for a trip.

- The 3<sup>rd</sup> grade class sold 250 boxes.
- The 4<sup>th</sup> grade class sold 150 boxes.
- The 5<sup>th</sup> grade class sold 300 boxes.
- The 6<sup>th</sup> grade class sold 100 boxes.

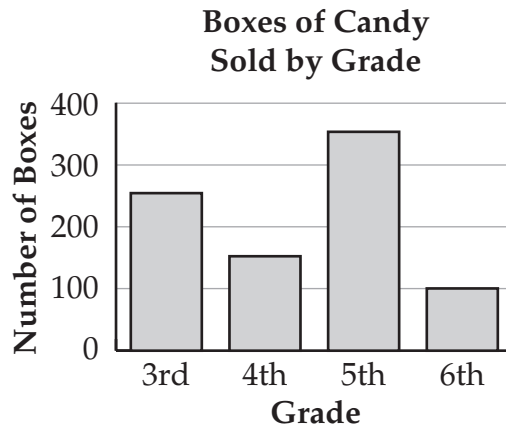
Which bar graph shows this data?

A



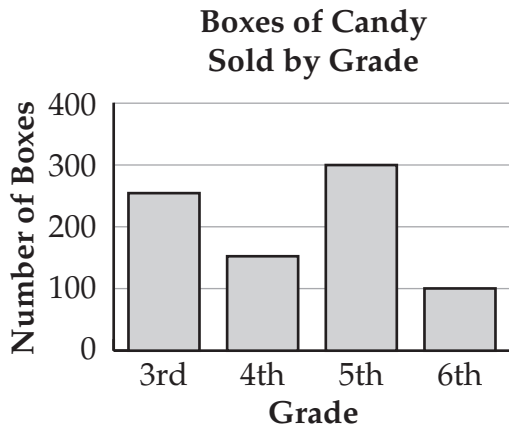
*sixth grade incorrect*

B



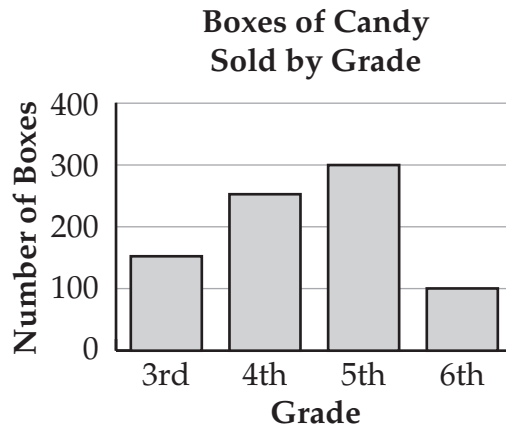
*fifth grade incorrect*

C



\*

D



*third and fourth grade in wrong order*

# MATHEMATICS

## E.2.1.1

23. Mr. Yee recorded Brad's test scores in his grade book.

**Brad's Test Scores**

100
78
86
100
84
70
100
86

What is Brad's **median** test score?

- A 30
- B 86 \*
- C 88
- D 100

## E.3.1.1

24. Vic had a bouquet of 4 daisies, 6 roses, 1 iris, and 5 carnations. Vic dropped 1 flower from the bouquet. What is the probability that Vic dropped a daisy?

- A  $\frac{1}{16}$
- B  $\frac{1}{15}$
- C  $\frac{1}{4}$  \*
- D  $\frac{1}{3}$

## E.3.1.2

25. A store offered the following choices for ring designs for kids.

**Ring Designs**

Band Color	Stone Color
red	clear
yellow	white
blue	black

How many different ring design combinations could be made using 1 band color and 1 stone color?

- A 2
- B 3
- C 6
- D 9 \*

# MATHEMATICS

## GRADE 6 FIRST OPEN-ENDED ITEM

A.1

26. An officer of a company conducted a survey to find out the age ranges of customers. He recorded the number of customers surveyed as  $20 \times 20 \times 20 \times 20$ .

A. Write the number of customers surveyed in exponential form.

The officer then made a chart to show the portions of customers in each age range.

**Age Range of Customers**

Age Range	Portion of Customers	Decimal Portion
20–29	50%	
30–39	25%	
40–59	$\frac{19}{100}$	
60–99	$\frac{6}{100}$	

B. In order to make comparisons, the officer wanted to change all the portions to decimals. Fill in the Decimal Portion column with each equivalent decimal.

**GO TO THE NEXT PAGE TO FINISH THE QUESTION.**

## MATHEMATICS

26. *Continued.* Please refer to the previous page for task explanation.

- C. The officer wanted to introduce a new product to sell to at least  $\frac{1}{3}$  of the customers in the age range 60–99. Convert  $\frac{1}{3}$  to a decimal and explain why the decimal is or is not a terminating decimal.