



The Pennsylvania System of School Assessment

Mathematics Item and Scoring Sampler



2007–2008
Grade 6

MATHEMATICS

MULTIPLE-CHOICE ITEMS

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

A.3.1.1

1. Maria took \$60.00 with her to go shopping. She spent \$27.89 in one store and \$11.42 in another store. She made no other purchases. Which is the **closest estimate** of the amount of money Maria had left?

- A \$10
- B \$20 *
- C \$30
- D \$40

A.3.2.1

2. Divide: $1.5 \overline{)12.75}$

- A 7.2
- B 8.4
- C 8.5 *
- D 9.2

A.3.2.1

3. What is $\frac{5}{7} - \frac{1}{2}$?

- A $\frac{3}{14}$ *
- B $\frac{2}{7}$
- C $\frac{4}{7}$
- D $\frac{4}{5}$

MATHEMATICS

A.1.1.2

4. What decimal number is equivalent to $\frac{1}{6}$?

A 0.16

B 0.6

C $0.1\bar{6}$ *

D 0.2

A.1.3.2

5. A librarian is placing books on shelves.

- The librarian has more than 20 books.
- The librarian can put 8 books on each shelf with no books left over.
- The librarian could also put 20 books on each shelf with no books left over.

Which is the **least** number of books that the librarian could have?

A 28 books

B 40 books *

C 80 books

D 160 books

A.1.3.3

6. Mr. Jones is separating the school band into groups. He can put the students into either groups of 3 or groups of 10 without leaving out any students. How many students could be in the band?

A 33

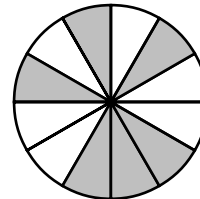
B 60 *

C 133

D 160

A.1.4.1

7. The circle below is divided into equal-sized sections.



What percent of the circle is shaded?

A 6%

B 12%

C 50% *

D 60%

MATHEMATICS

A.2.1.1

8. Which expression completes the equation $(19 \times 3) + (19 \times 1) = \boxed{}$?

A $19 + (3 \times 1)$ *incorrect operations*

B $19 \times (3 + 1)$ *

C $(19 + 19) \times (3 + 1)$ *used both 19s*

D $(19 + 3) \times (19 + 1)$ *incorrect operations*

B.1.1.1

9. Larry began exercising at 9:15 A.M. He finished exercising at 10:08 A.M. and did not take any breaks. How many minutes did Larry exercise?

A 53 minutes *

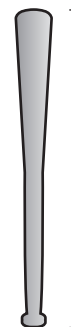
B 57 minutes $15 - 8 = 7;$
 $50 + 7 = 57$

C 67 minutes $10 - 9 = 1;$ $15 - 8 = 7;$
 $1 \text{ hr } 7 \text{ min} = 67 \text{ min}$

D 93 minutes $10.08 - 9.15 = 0.93 \text{ as}$
 93 minutes

B.2.1.1

Use the figure below to answer question 10.



10. Using your ruler, what is the length of the toy bat?

A 40 millimeters *off by 2 mm*

B 42 millimeters *

C 44 millimeters *off by 2 mm*

D 46 millimeters *off by 4 mm*

B.2.1.2

11. Molly bought a bunch of grapes. Which measurement of the weight of Molly's grapes is the **most** precise?

A 1,363 grams *

B 2 kilograms

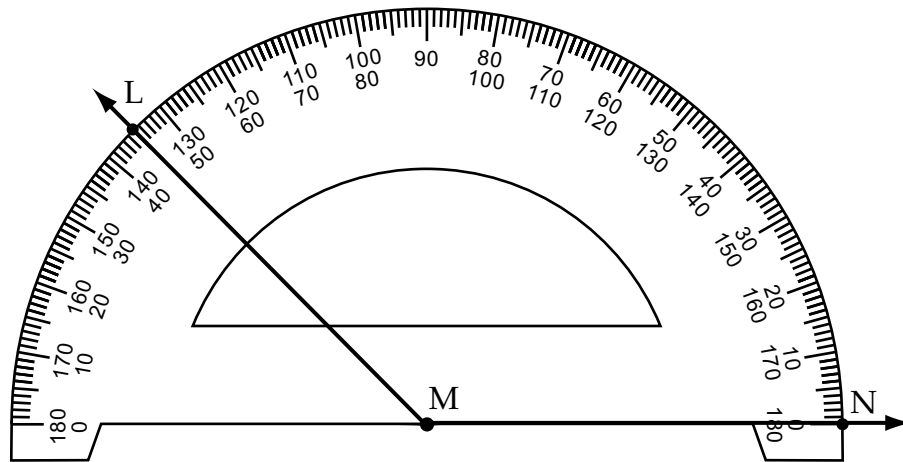
C 50 ounces

D 3 pounds

MATHEMATICS

B.2.1.3

Use the protractor below to answer question 12.



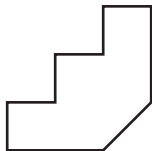
12. What is the measure of $\angle LMN$?

- A 45°
- B 55°
- C 135° *
- D 145°

MATHEMATICS

C.1.1.1

Use the figure below to answer question 13.

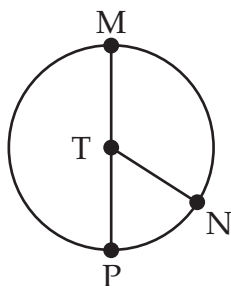


13. What type of polygon is the figure?

- A decagon
- B heptagon
- C nonagon *
- D octagon

C.1.1.3

14. Circle T is shown below.



Nina measured the length of line segment MP as 20 centimeters (cm). What is the length of line segment NT?

- A 5 cm
- B 10 cm *
- C 15 cm
- D 20 cm

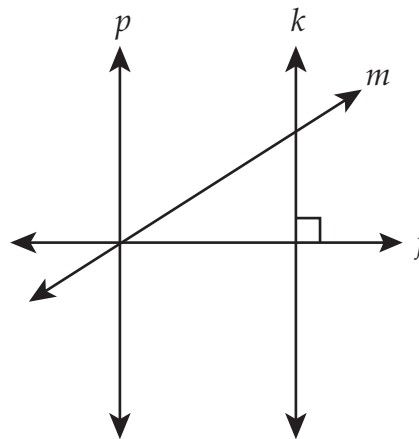
C.1.1.4

15. How many degrees will the minute hand on a clock move in 1 full rotation?

- A 90°
- B 180°
- C 300°
- D 360° *

C.1.2.1

16. Line p is parallel to line k in the figure shown below.



Which statement about the lines in the figure is **true**?

- A Line k is parallel to line m .
- B Line m is parallel to line j .
- C Line p is perpendicular to line k .
- D Line j is perpendicular to line p . *

MATHEMATICS

D.1.1.1

17. The table below shows the time it takes Sam to run different distances.

Time (in seconds)	Distance of Run (in meters)
10	6
20	12
30	18
40	24

Based on the pattern shown in the table, how many meters can Sam run in 70 seconds?

- A 24 meters *last distance in table*
- B 35 meters $(70 \div 10) 5$
- C 42 meters *
- D 48 meters *distance in 80 seconds*

D.1.2.1

Use the table below to answer question 18.

Input	Output
0	3
1	5
2	7
3	9

18. Which rule was used on the input number to get the output number?

- A multiply by 1 and add 2
differences in first column and in second column are 1 and 2
- B multiply by 1 and add 3
generates first row output
- C multiply by 2 and add 2
wrong value added after multiplying
- D multiply by 2 and add 3
 *

MATHEMATICS

D.2.1.1

19. Emmy is 12. She writes an equation to find her mother's age, m .

$$m - 12 = 35$$

Which operation solves the equation for m ?

- A add 12 to both sides *
- B subtract 12 from both sides
- C multiply both sides by 12
- D divide both sides by 12

D.2.1.2

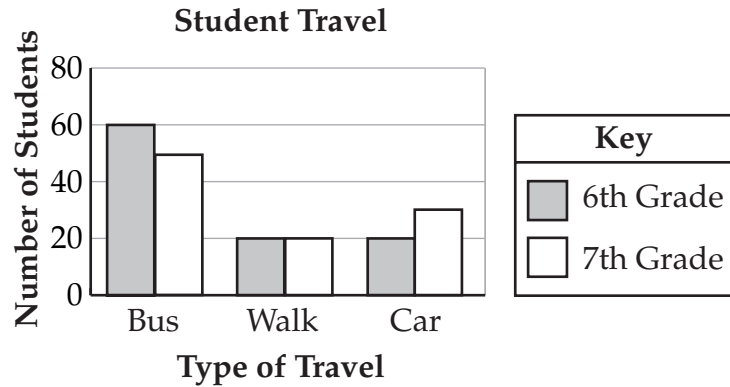
20. What is the value of x in the equation $32x = 512$?

- A 16 *
- B 480
- C 544
- D 16,384

MATHEMATICS

E.1.1.1

21. The graph below shows how the 6th and 7th grade students at Ames Middle School travel to school.



Based on the graph, what is the total number of 7th grade students who ride a bus to school?

- A 20
- B 30
- C 50 *
- D 60

MATHEMATICS

E.1.1.2

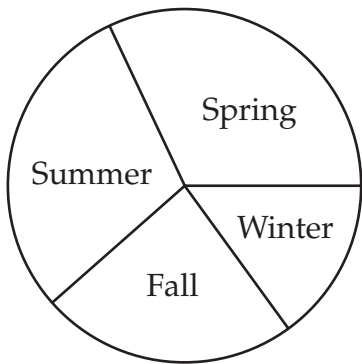
22. Cynthia surveyed 200 people about their favorite season. The results are shown in the table below.

Favorite Season

Season	Number of People
Spring	68
Summer	58
Fall	47
Winter	27

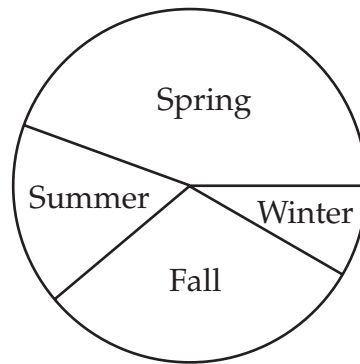
Which circle graph **best** displays the data in the table?

A Favorite Season



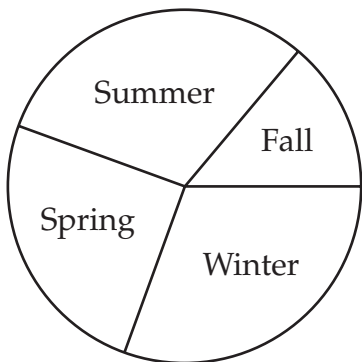
*

B Favorite Season



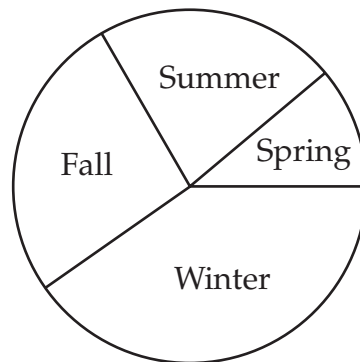
spring section is too large

C Favorite Season



winter section is too large

D Favorite Season



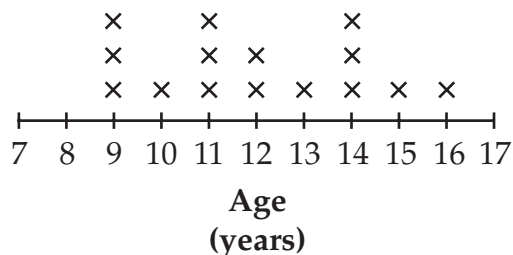
spring section is too small

MATHEMATICS

E.2.1.1

23. The ages of the children in a drama class are shown in the line plot below.

Ages of Children in a Drama Class



What is the **range** of the children's ages?

- A 7 years *
- B 9 years
- C 14 years
- D 16 years

E.3.1.1

24. Hank has a case of CDs. Of the 8 CDs in the case, 3 are **new**. Hank drops the case and 1 CD breaks. What is the probability that a **new** CD breaks?

- A $\frac{1}{8}$
- B $\frac{1}{3}$
- C $\frac{3}{8}$ *
- D $\frac{3}{5}$

E.3.1.2

25. Four basketball players are lining up to practice free throws. Of the 4 players, 1 has already been chosen to practice first. In how many different orders could the **other** players line up?

- A 6 *
- B 7
- C 9
- D 12

MATHEMATICS

FIRST OPEN-ENDED ITEM

D.2

26. A movie theater has 300 seats. There are 25 rows of seats in the theater. The manager of the theater wrote the equation below.

$$25 \times n = 300$$

A. Solve for the variable n in the equation. Show all your work.

B. Explain what the variable n represents in the equation.

GO TO THE NEXT PAGE TO FINISH THE QUESTION.

MATHEMATICS

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

- C. The theater sold tickets for all 300 seats. Just before the movie started, the manager counted 23 empty seats in the theater.

Write an equation that could be used to find the number of people (p) that were in the theater seats just before the movie started. Explain why your equation is correct.

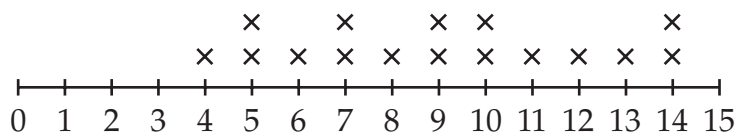
MATHEMATICS

SECOND OPEN-ENDED ITEM

E.2

27. During the first round of a speech contest, each speaker earns a score from 0 to 15 points. The line plot below shows the first round scores for the speakers in the contest.

Scores for 1st Round of Speech Contest



- A. Only the 10 speakers with the highest scores from the first round get to compete in the final round of the contest. What is the **mean** of the 10 highest scores from the first round? Show all your work. Explain why you did each step.

GO TO THE NEXT PAGE TO FINISH THE QUESTION.

MATHEMATICS

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

During the final round of the speech contest, each speaker can earn a greater number of points than in the first round. Each speaker can earn from **0 to 35 points**. The scores of 9 of the final round speakers are shown in the table below.

**Scores for Final Round
of Speech Contest**

Scores
19
20
21
25
26
27
27
27
32

- B.** The **range** of the final round scores **after** the 10th speaker's score was added to the list was 14 points. What could have been the 10th speaker's score in the final round? Show all your work. Explain why you did each step.