## Student Name:

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## Ohio

## Achievement Tests



## Mathematics Student Test Booklet

May 2007

This test was originally administered to students in May 2007.
Not all items from the May 2007 administration will be released in this document. According to Ohio Revised Code (ORC) 3301.07.11:4(b) . . . not less than forty percent of the questions on the test that are used to compute a student's score shall be a public record. The department (of education) shall determine which questions will be needed for reuse on a future test and those questions shall not be public records and shall be redacted from the test prior to its release as public record.

This publicly released material is appropriate for use by Ohio teachers in instructional settings. This test is aligned with Ohio's Academic Content Standards for Mathematics.

Mathematics
4. Which box-and-whisker plot represents a situation where $75 \%$ of the data is 200 or less?

A.

B.

C.

D.

5. The County Fair charges a $\$ 3$ entrance fee. The cost of each ride is $\$ 2$.

Which equation represents the cost $(y)$ of getting into the fair and going on $x$ number of rides?
A. $y=3+2+x$
B. $y=(3+2) x$
C. $y=3+2 x$
D. $y=3 x+2$

## Item 6 has not been slated for public release in 2007.

7. The product of a number and seven is 322 .

Which method can be used to find the value of this number?
A. Multiply the number by 322.
B. Divide 322 by the number.
C. Multiply the number by 7 .
D. Divide 322 by 7 .

Mathematics
8. Triangle XYZ is shown.


Angles $X$ and $Z$ are congruent.
Which statement is always true?
A. $\mathrm{m} \angle \mathrm{Y}=90^{\circ}$
B. $\overline{Y Z} \cong \overline{Z X}$
C. $Z X>X Y$
D. $\overline{X Y} \cong \overline{Y Z}$
11. Rectangle $P Q R S$ is shown on the coordinate plane.


For question 11 , respond completely in your Answer
Document. (2 points)

In your Answer Document, sketch rectangle $A B C D$ centered at the origin to represent a dilation of rectangle $P Q R S$ by a scale factor of 1.5.

Then, state one characteristic of rectangle PQRS that does not change as a result of the dilation.

## Items 12-13 have not been slated for public release in 2007.

14. The chart shows the number of cars sold per week at a car dealership during the month of June.

| Salesperson | Week One | Week Two | Week Three | Week Four |
| :---: | :---: | :---: | :---: | :---: |
| Tim | 4 | 8 | 2 | 1 |
| Geena | 1 | 2 | 7 | 1 |
| Rafael | 2 | 1 | 5 | 4 |
| Sonny | 4 | 1 | 1 | 10 |

How should the data be displayed to make the most convincing argument that sales improved each week?
A. a bar graph of the total car sales per week
B. a box-and-whisker plot of Sonny's sales per week
C. a line graph of each salesperson's sales per week
D. a circle graph showing how many cars each person sold during the month

Mathematics
17. A cone has a height of 4 inches and a circumference at the base of $12 \pi$ inches.

What is the approximate volume of the cone?
A. 150 inches $^{3}$
B. 200 inches $^{3}$
C. 450 inches $^{3}$
D. 600 inches $^{3}$
18. The distance between Earth and the Sun is approximately 150,000,000 kilometers.

What is this distance written in scientific notation?
A. $1.5 \times 10^{6}$
B. $1.5 \times 10^{7}$
C. $1.5 \times 10^{8}$
D. $1.5 \times 10^{9}$
19. Which equation represents a direct variation?
A. $y=5 x$
B. $y=\frac{5}{x}$
C. $y=5$
D. $y=5-x$

Mathematics
28. The $\sqrt{183}$ is between which two integers?
A. 12 and 13
B. 13 and 14
C. 45 and 46
D. 91 and 92

## Item 29 has not been slated for public release in 2007.

30. Two points $(-1,1)$ and $(3,-2)$ are graphed on a coordinate plane.

What is the shortest distance between the points?
A. 3
B. 4
C. 5
D. 7

## Item 31 has not been slated for public release in 2007.

32. A map of downtown Centerville shows North Street parallel to Canal Street.


Main Street is perpendicular to both North and Canal streets. The angle between
Central Avenue and Main Street is $45^{\circ}$.
What is the measure of angle $X$ ?
A. $45^{\circ}$
B. $120^{\circ}$
C. $135^{\circ}$
D. $150^{\circ}$
34. The daily noon temperatures for two cities were collected over a one-month period. The data were used to create the box-andwhisker plots shown.

Daily Noon Temperatures ( ${ }^{\circ} \mathrm{F}$ )
Sunnyville


Which statement is supported by the data?
A. Sunnyville has the lowest noon temperature.
B. Marytown has a greater interquartile range.
C. The median temperature is the same for both towns.
D. Marytown has a greater range of noon temperatures.

Mathematics

## Items 35-36 have not been slated for public release in 2007.

37. Sabrina rides her bike 2 miles to school each day. She leaves her house at 7:30 and arrives at $7: 50$.

What is Sabrina's average speed in miles per hour?
A. 1 mile per hour
B. 6 miles per hour
C. 10 miles per hour
D. 40 miles per hour
38. Which expression represents the $n$th term in the sequence $1,3,5,7,9, n \ldots$ ?
A. $n-2$
B. $2 n^{2}-1$
C. $2 n-1$
D. $2^{n}-1$

## Items 39-41 have not been slated for public release in 2007.

42. What is the measure of one interior angle of a regular pentagon?
A. $108^{\circ}$
B. $72^{\circ}$
C. $54^{\circ}$
D. $36^{\circ}$

## Item 43 has not been slated for public release in 2007.

Mathematics
44. The table shows the relationship between the number of minutes and the cost of a phone call.

| Time <br> (in minutes) | Cost <br> (in dollars) |
| :---: | :---: |
| 15 | 0 |
| 30 | 0.75 |
| 45 | 1.50 |
| 60 | 2.25 |
| 75 | 3.00 |

Which describes the relationship between the number of minutes and the cost of a phone call?
A. The cost of a phone call is $\$ 0.15$ per minute after the first 25 minutes.
B. The cost of a phone call is $\$ 0.03$ per minute.
C. The cost of a phone call is $\$ 0.05$ per minute after the first 15 minutes.
D. The cost of a phone call is $\$ 1.00$ per 25 minutes.

