## MATHEMATICS

# GRADE LEVEL SAMPLE TEST 2003-2005 

## GRADE <br> 8

Calculation and Estimation

Measurement
Statistics and Probability
Algebraic Relationships
Geometry

## DIRECTIONS

Read each of the questions below and then decide on the BEST answer. There are a lot of different kinds of questions, so read each question carefully before marking an answer on your answer sheet.

## 1

The 8th grade party committee has decided to give an equal number of pieces of candy to each participant. There are 256 pieces to give away. If all of the candy is given away, which of these could not be the number of pieces of candy given away to each person under this plan?
A. 128
B. 36
C. 16
D. 8

## 2

Each block weighs the same. What is the approximate weight of one block?

A. About 5.8 pounds
B. About 6 pounds
C. About 7 pounds
D. About 8.5 pounds

## 3

John throws a fair 6-sided die. What is the chance he will get a 3 OR a 6 ?

A. $\frac{1}{12}$
B. $\frac{1}{6}$
C. $\frac{1}{3}$
D. $\frac{1}{2}$

## 4

Graciella is one year less than twice as old as her youngest brother. Which expression could be used to show her age?
A. 1-2b
B. $2 b-1$
C. $2 b$
D. $2 b+1$

## 5

How many lines of symmetry are in this figure?

A. 0
C. 2
B. 1
D. Infinite

## Mathematics $\boldsymbol{V}$

## 6

Which of the following sets of numbers contains only prime numbers?
A. $1,5,17,31,60$
B. $2,9,17,29,53$
C. $2,13,19,43,57$
D. $7,23,37,47,61$

## 7

What is the difference in the lengths of segments $\bar{A}$ and $\bar{B}$ ?

A. $1 \frac{1}{4}$
B. $1 \frac{1}{2}$
C. $1 \frac{3}{4}$
D. $4 \frac{1}{4}$

## 8

According to the graph, which of the following is true?

A. Over half the day is taken up by sleeping and eating.
B. School and homework make up approximately half of the waking hours.
C. The total time spent on chores and homework is greater than the amount of free time.
D. The largest part of the day is spent at school.

## 9

On January 4, the temperature at 2 p.m. was $5^{\circ} \mathrm{C}$. At 11 p.m. it had dropped to $-3^{\circ} \mathrm{C}$. To find the number of degrees the temperature dropped, which equation could you use?
A. $5-3=x$
B. $5-(-x)=-3$
C. $5-x=-3$
D. $x-(-3)=5$

## 10

A spoke on a bicycle wheel is most like which part of a circle?

A. A radius
B. A chord
C. The circumference
D. An arc

## 11

About 60\% of the used white paper is recycled at Lance's school. The school uses 1,260 pounds of white paper per month. Which is the best estimate for the number of pounds of white paper recycled per month?
A. 500-560
C. $720-780$
B. 600-660
D. $850-910$

## 12

A farmer needs to put up a fence around her pasture. How many yards of fencing will she need?

A. 300 yards
B. 100 yards
C. 75 yards
D. 50 yards

## 13

During a week in January in Alaska the following high temperatures were recorded:

Anchorage: $\quad 15^{\circ}, 6^{\circ},-2^{\circ}, 2^{\circ},-6^{\circ},-7^{\circ},-12^{\circ}$ Juneau: $\quad 13^{\circ}, 10^{\circ},-4^{\circ},-2^{\circ},-2^{\circ}, 2^{\circ},-4^{\circ}$

Which of the following is the best symbol to use to compare the mean high temperatures of Anchorage and Juneau?
A. Mean in Anchorage $=$ Mean in Juneau
B. Mean in Anchorage $\geq$ Mean in Juneau
C. Mean in Anchorage $>$ Mean in Juneau
D. Mean in Anchorage < Mean in Juneau

14 Use these objects to find the value of each $Y$ variable.

A. $Y=0$
B. $Y=1$
C. $Y=2$
D. $Y=3$

## 15

What best describes an unopened box of tissue and a book?
A. Both are rectangular pentagons.
B. Both are rectangular prisms.
C. Both are rectangular pyramids.
D. Both are rectangular polygons.

## Mathematics $\boldsymbol{\nabla}$

## 16

Amy, John, and Carlos each measure the distance from their classroom to the drinking fountain. Who measured with the most precision?

Amy $\quad 16.5 \mathrm{~m}$
John 16 m
Carlos 16.47 m
A. Amy
B. John
C. Carlos
D. There is no way to tell

## 17



What is the area of triangle $\mathrm{A}(-2,0)$, B $(4,0)$, and $C(2,7)$ ?
A. 18 square units
B. 21 square units
C. 24 square units
D. 36 square units

## 18

What is the probability that a teacher chosen at random will be a male?

| SCHOOL TEACHERS |  |  |
| :---: | :---: | :---: |
| Age in years | Male | Female |
| Under 25 | 5 | 7 |
| $25-34$ | 10 | 11 |
| $35-44$ | 15 | 17 |
| $45-54$ | 7 | 11 |
| 55 or over | 8 | 5 |

A. $\frac{1}{2}$
B. $\frac{9}{20}$
C. $\frac{13}{32}$
D. $\frac{15}{32}$

19


Which of these is a true statement about this pattern?
A. On the big rectangles the top row of squares is always one longer than the other rows.
B. The extra squares on the top right exactly "fill in" for the ones missing on the left.
C. Every column is the same height as the pattern number.
D. Each new pattern adds one row and two columns.

## Mathematics $\boldsymbol{\nabla}$

20


Kaylor wants to cover a cube with paper.
Which expression provides a formula for the SURFACE AREA of the cube?
A. $S=6 x^{2}$.
B. $S=4 x^{2}$.
C. $S=x^{3}$.
D. $S=x^{6}$.

## 21

How many whole numbers will divide into 36 evenly?
A. 7
B. 8
C. 9
D. 10

## 22

A circle has a radius of 7 inches. What is the approximate area of the circle?

A. 20 square inches
B. 40 square inches
C. 90 square inches
D. 150 square inches

## 23

What is the range of the following numbers?

## 3, 7, 2, 7, 4, 8, 2, 3, 2

A. 2
B. 3
C. 4
D. 6

## 24

A farmer has 6 times as many Holstein as Jersey cows. What proportion of the total number of cows are Holsteins?
A. $\frac{1}{6}$
B. $\frac{1}{7}$
C. $\frac{5}{6}$
D. $\frac{6}{7}$

## 25

A geometric solid that has 7 faces, 10 vertices, and 15 edges is best described as a $\qquad$ -
A. hexagonal prism
B. pentagonal prism
C. heptagonal prism
D. rectangular prism

BENCHMARK III (GRADE 8) MATHEMATICS SAMPLE TEST KEY 2003-2005

| Test Item | Correct Answer | Score Reporting Category |
| :---: | :---: | :--- |
| 1 | B | Calculations and Estimations |
| 2 | C | Measurement |
| 3 | C | Statistics and Probability |
| 4 | B | Algebraic Relationships |
| 5 | B | Geometry |
| 6 | D | Calculations and Estimations |
| 7 | A | Measurement |
| 8 | B | Statistics and Probability |
| 9 | C | Algebraic Relationships |
| 10 | A | Geometry |
| 11 | C | Calculations and Estimations |
| 12 | B | Measurement |
| 13 | D | Statistics and Probability |
| 14 | C | Algebraic Relationships |
| 15 | B | Geometry |
| 16 | C | Calculations and Estimations |
| 17 | B | Measurement |
| 18 | D | Statistics and Probability |
| 19 | D | Algebraic Relationships |
| 20 | A | Geometry |
| 21 | C | Calculations and Estimations |
| 22 | D | Measurement |
| 23 | D | Statistics and Probability |
| 24 | D | Algebraic Relationships |
| 25 | B | Geometry |


| Number Correct | CONVERTING TO A RIT SCORE <br> RIT score | Number Correct | RIT score |
| :---: | :---: | :---: | :---: |
| 1 | 198 | 14 | 234 |
| 2 | 205 | 15 | 236 |
| 3 | 210 | 16 | 238 |
| 4 | 213 | 17 | $240 \cdot \cdot$ |
| 5 | 216 | 18 | 242 |
| 6 | 219 | 19 | 244 |
| 7 | 221 | 20 | 246 |
| 8 | 223 | 21 | 249 |
| 9 | 225 | 22 | 253 |
| 10 | 227 | 23 | 258 |
| 11 | 229 | 24 | 265 |
| 12 | 230 | 25 | 272 |
| 13 | $232^{*}$ |  |  |

[^0]- Likely to meet Benchmark III Standards •• Likely to exceed Benchmark III Standards

Students with 8 or fewer correct answers are likely to take Form A
Students with 19 or more correct answers are likely to take Form C
Note: The sample test is for practice only; scores may not be substituted for the Oregon Statewide Assessment.


[^0]:    Recommendations for Level Test Placement:

