## Oklahoma School Testing Program



Oklahoma Core Curriculum Tests

# 2011-2012 Released Items 

Grade 8
Mathematics

Oklahoma State Department of Education Oklahoma City, Oklahoma
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## Directions

Read each question and choose the best answer.

1 Candace has saved \$5. She plans to save an additional \$4 each week. Which equation could be used to find $t$, the total amount of money she will have saved after w weeks?

A $t=5 w+4$
B $t=4 w+5$
C $\mathrm{t}=5 \mathrm{w}-4$
D $\mathrm{t}=4 \mathrm{w}-5$

2 Which number line best represents the solution to the equation shown below?

$$
3 x-5=10
$$

A


B


C


D


3 The graph of the equation $y=3 x+4$ is shown below.


Which graph best represents the equation created when the slope of $y=3 x+4$ is changed to zero and the $y$-intercept remains the same?
A

B

C

D


4 Dave drives at an average rate of 60 miles per hour. How many hours will it take Dave to drive $\mathbf{4 2 0}$ miles?

$$
\mathbf{d}=\mathbf{r t}
$$

A 6 hrs
B 7 hrs
C 8 hrs
D 10 hrs

5 Aaron's living room has a circular rug with a circumference of 8 feet. Which equation can be used to find the radius, $r_{\boldsymbol{r}}$ in feet, of the circular rug?

$$
C=2 \pi r
$$

A $r=\frac{\pi}{4}$

B $r=\frac{4}{\pi}$

C $r=8-2 \pi$

D $\quad r=2 \pi-8$

6 Which inequality is represented by the solutions shown on the number line?


A $\mathrm{n} \leq 4$
B $\mathrm{n}<4$
C $\quad \mathrm{n} \geq 4$
D $n>4$

7 Grace is participating in a basketball shooting contest. Each student attempts 2- and 3-point baskets. If Grace earned 12 points shooting 3-point baskets, which inequality shows the number of 2-point baskets she must make to beat her last year's score of 30 points?

A $2 x-12>30$
B $2 x+12>30$
C $2 x-12<30$
D $2 x+12<30$

$$
\frac{x}{4}+16>34
$$

What is the solution to the inequality shown above?
A $x<-18$
B $x>18$
C $x>72$
D $x<-72$

9 A scientist measured the length of a plant cell to be 5 micrometers. A micrometer is $\mathbf{0 . 0 0 0 0 0 1}$ meter. Which shows 5 micrometers written in scientific notation?

A $1 \times 10^{-6}$
B $1 \times 10^{6}$
C $5 \times 10^{6}$
D $5 \times 10^{-6}$

10 The human heart beats approximately 100,000 times per day. Which is closest to the number of times a heart beats by the time a person is 11 years old?

$$
1 \text { year } \approx 365 \text { days }
$$

A $1 \times 10^{6}$ beats
B $4 \times 10^{7}$ beats
C $4 \times 10^{8}$ beats
D $4 \times 10^{9}$ beats

11 What is the value of $y$ in the equation below when $x=2$ ?

$$
y=x^{3} \cdot x^{2}
$$

A $y=20$
B $y=24$
C $y=32$
D $y=64$

12 The closest the planet Mercury comes to Earth is about $\mathbf{8} \times 10^{7}$ kilometers. The closest the moon comes to Earth is about $3.6 \times 10^{5}$ kilometers. At their closest points, how many times closer to Earth is the moon than Mercury?

A $2.2 \times 10^{-2}$
B $2.2 \times 10^{2}$
C $4.2 \times 10^{2}$
D $4.2 \times 10^{12}$

13 The 2009 population of Texas was about $2.5 \times 10^{7}$ people. The 2009 population of Oklahoma was about $3.7 \times 10^{6}$.

$$
\left(2.5 \times 10^{7}\right)+\left(3.7 \times 10^{6}\right)
$$

Which estimate is closest to the combined population of Texas and Oklahoma in 2009?
A $6.2 \times 10^{7}$ people
B $6.2 \times 10^{13}$ people
C $2.87 \times 10^{7}$ people
D $2.87 \times 10^{14}$ people

14 What is the value of this expression?

$$
8 \div 2+2(6-9)^{2}
$$

A -161
B -14
C 22
D 26

15 Which solid can be created by folding the two-dimensional net drawn below along the dotted line segments?


A triangular prism
B cube
C rectangular prism
D triangular pyramid


Which solid below is represented by the three views shown above?


Front View

B


Front View

D


Right Side View

Front View

Front View

17 The width of the rectangle inside the 5-sided figure below is one-half its length.


What is the perimeter of this 5-sided figure?
A 17 in .
B 19 in .
C 22 in .
D 28 in .

18 Neela has a game board in the shape of an equilateral triangle. Each side of the board is 12 inches (in.) long.


$$
6 \text { in. } 6 \text { in. }
$$

What is the height, $h$, of the triangular game board?

$$
a^{2}+b^{2}=c^{2}
$$

A $\sqrt{12}$ inches
B $\sqrt{108}$ inches
C $\sqrt{180}$ inches
D $\sqrt{288}$ inches

19 A cylindrical hole was drilled out of a metal, rectangular prism.


Which is closest to the volume in centimeters cubed ( $\mathrm{cm}^{3}$ ) of metal remaining in the rectangular prism after drilling?

$$
\begin{gathered}
V_{\text {rectangular prism }}=I w h \\
V_{\text {cylinder }}=\pi r^{2} h
\end{gathered}
$$

A $1,500-6.25 \pi$
B $1,500-25 \pi$
C 1,500-93.75 $\pi$
D 1,500-375

20 Triangles QRS and TUV are similar. What is the length of $\overline{Q R}$ ?


A 1.5 inches
B 3 inches
C 4 inches
D 6 inches


Rectangles GHIJ and KLMN are similar. What is the length of $\overline{\mathbf{L M}}$ ?
A 1.5 cm
B 5 cm
C 6.5 cm
D 7.5 cm

22 A circle with a 4-inch (in.) diameter was cut out of a square piece of wood, as shown below.


Which expression represents the area of the remaining wood, in square inches (sq in.)?

$$
\begin{aligned}
& \mathbf{A}_{\text {square }}=s^{2} \\
& \mathbf{A}_{\text {circle }}=\pi \mathbf{r}^{2}
\end{aligned}
$$

A $225+16 \pi \mathrm{sq} \mathrm{in}$.
B $225-16 \pi$ sq in.
C $225+4 \pi \mathrm{sq}$ in.
D $225-4 \pi \mathrm{sq} \mathrm{in}$.

23 Yvette keeps track of how far she walks each day. For 4 consecutive days, she walked 1.5 miles, 2 miles, 1 mile, and 3 miles. Which graph best represents this data?
A

B
Yvette's Walking Distances

C Yvette's Walking Distances

D Yvette's Walking Distances


24 The circle graph shows the proportion of eighth-grade votes for each candidate in the Student Council election.

Voting in
Student Council Election


Which of these statements is true?
A Betty received more votes than all of the other candidates combined.
B Alan received the most votes.
C Betty and Alan together received more than $75 \%$ of all the votes.
D No candidate received more than half of the votes.

25 Melanie randomly asked 10 students how many sweaters they each owned. The results are shown in this list.

$$
2,2,2,2,3,3,4,4,5,19
$$

Which measure of central tendency gives Melanie the most useful information about how many sweaters each student owns?

A mean
B median
C mode
D range

