

**Diagnostic and
Placement
Grade 7**

Name _____

Date _____

This test contains 30 multiple-choice questions. Work each problem in the space on this page. Select the best answer. Write the letter of the answer on the blank at the right.

1 Nate has $6\frac{3}{5}$ yards of fabric. He uses $3\frac{1}{2}$ yards of fabric to make a pillow. How much fabric does he have left? **1** _____

A $3\frac{1}{10}$ yards

C $3\frac{2}{3}$ yards

B $3\frac{1}{5}$ yards

D $4\frac{1}{10}$ yards

2 Olivia orders 4 ham sandwiches at the deli. The total amount was \$30.52. How much did each sandwich cost? **2** _____

F \$7.63

G \$7.83

H \$12.63

J \$122.08

3 Mrs. Cheng has \$18 deducted monthly from her checking account for her gym membership. What integer represents the change in her account for a year of gym membership? **3** _____

A $-\$18$

B $-\$36$

C $-\$180$

D $-\$216$

4 Find $\frac{3}{5} \times 4\frac{1}{3}$. Write in simplest form. **4** _____

F $\frac{9}{16}$

G 2

H $2\frac{3}{5}$

J $4\frac{14}{15}$

5 On a map, 3 inches represent an actual distance of 42 miles. If the actual distance between two cities is 322 miles, how many inches apart will the two cities be on the map? **5** _____

A 8 inches

C 23 inches

B 14 inches

D 107 inches

6 Tyler earned \$68 for babysitting 8 hours. If Tyler is paid the same rate, how much will he earn for babysitting 12 hours?

- F \$8.50
- G \$80
- H \$102
- J \$816

6 _____

7 Charlene bought her friends lunch. The bill came to \$52.80 before Charlene added an 18% service tip. How much did she add for the service tip?

- A \$4.75
- B \$5.70
- C \$9.50
- D \$10.20

7 _____

8 The school band sold 200 tickets to their concert. If 90 of the tickets were adult tickets, what percent of the tickets sold were adult tickets?

- F 18%
- G 45%
- H 55%
- J 90%

8 _____

9 A car travels 528 miles on 16 gallons of gas. At the same rate, how many gallons of gas are needed to travel 165 miles?

- A 4
- B 5
- C 6
- D 7

9 _____

10 The table shows the cost of blueberries at a local farmer's market. What is the unit price for one ounce of blueberries?

Ounces	Cost
6	\$1.80
12	\$3.60
18	\$5.40

- F \$0.30 per ounce
- G \$0.40 per ounce
- H \$0.60 per ounce
- J \$1.80 per ounce

10 _____

11 Which expression is equivalent to $5x + 2 - x + 10$?

- A $4x + 12$
- B $6x + 12$
- C $4x - 8$
- D $6x - 8$

11 _____

- 12** A triangle has a height that is 5 units shorter than its base. If b represents the base and h represents the height, which of the following equations represent the area of the triangle?

F $A = \frac{1}{2}(b - 5)$

H $A = \frac{1}{2}b(b - 5)$

G $A = \frac{1}{2}(h - 5)$

J $A = \frac{1}{2}(b - 5)h$

12 _____

- 13** Which equation shows the relationship between the x - and y -values in the table to the right?

x	y
2	4
4	6
6	8
7	9
10	12

A $y = x - 2$

C $y = x + 2$

B $x = y + 2$

D $y = \frac{x}{2}$

13 _____

- 14** What is the solution to the equation $3t - 10 = 8$?

F $t = 3$

H $t = 8$

G $t = 6$

J $t = 9$

14 _____

- 15** Randy is playing a number game. Beginning with the number 8, he adds 4, multiplies by 5, and then divides by -10 . He then subtracts 2. What number does he find at the end of the game?

A -8

B -6

C 6

D 8

15 _____

- 16** The table below shows the charges for a taxi ride in a city.

Charges for Each Taxi Ride	
Charges	Rate
Mileage Charge	\$0.75 Each Mile
City Gas Tax	\$0.10 Each Mile
Tourist Charge	\$2.50

If a taxi ride is m miles, which expression can be used to find the total charge of the ride?

F $2.50m + 0.75$

H $0.10m + 3.25$

G $0.75m + 2.50$

J $0.85m + 2.50$

16 _____

17 Michael's age is 5 years younger than Jordan. Jordan is 4 years younger than Keanu. Keanu is 17 years old. How old is Michael?

17 _____

- A Michael is 12 years old, because he is 5 years younger than Keanu.
- B Michael is 22 years old, because he is 5 years older than Keanu.
- C Michael is 8 years old, because he is 5 years younger than Jordan, and Jordan is 13 years old.
- D Michael is 18 years old, because he is 5 years older than Jordan, and Jordan is 13 years old.

18 Jeb's weight w is $\frac{1}{3}$ of Iago's weight a . Which equation could be used to find Jeb's weight?

18 _____

- F $w = a - \frac{1}{3}$
- G $w = \frac{1}{3}a$
- H $w = \frac{1}{3} + a$
- J $w = a \div \frac{1}{3}$

19 An electrician charges \$30 for a house visit and \$55 for each hour of work. If Mrs. Firewalks was charged \$222.50 for work, which can be used to find the number of hours that the electrician worked?

19 _____

- A Subtract 55 from 222.50 and then divide the difference by 30.
- B Subtract 30 from 222.50 and then divide the difference by 55.
- C Divide 222.50 by 55.
- D Divide 222.50 by 30.

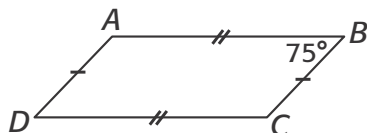
20 Diane draws an obtuse, isosceles triangle with one of the angles measuring 35° . What is the measure of the obtuse angle in her triangle?

20 _____

- F 35°
- G 55°
- H 110°
- J 145°

21 The measure of $\angle B$ in parallelogram $ABCD$ is 75° . What is the measure of $\angle A$?

21 _____



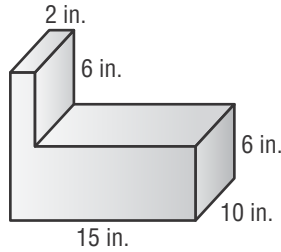
- A 75°
- B 105°
- C 150°
- D 210°

22 The circumference of a circle is 20π . What is the radius of this circle?

- F 2 G 10 H 20 J 40

22 _____

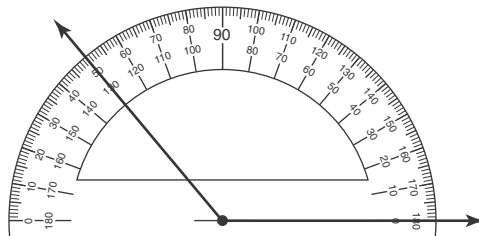
23 Find the surface area of the composite figure below.



- A 184 in^2 B 416 in^2 C 744 in^2 D 840 in^2

23 _____

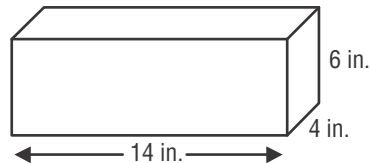
24 Which of the following is closest to the measure of the angle shown below?



- F 50° G 80° H 130° J 180°

24 _____

25 The height of a box is 6 inches. The length of the box is 14 inches and the width of the box is 4 inches.



25 _____

Which equation could be used to find the surface area of the box?

- A $s = 2 \cdot (14 \cdot 6) + 2 \cdot (4 \cdot 6)$ C $s = 2 \cdot (14 \cdot 4) + 2 \cdot (14 \cdot 6) + 2 \cdot (6 \cdot 4)$
 B $s = (14 \cdot 4) + (14 \cdot 6) + (6 \cdot 4)$ D $s = (14 \cdot 4) \cdot (14 \cdot 6) \cdot (6 \cdot 4)$

26 Booker has a bag of marbles. There are 10 blue marbles, 6 yellow marbles, and 4 red marbles. Booker reaches into the bag without looking and picks a marble. What is the probability that he picks a red marble?

F $\frac{1}{3}$

G $\frac{1}{4}$

H $\frac{1}{5}$

J $\frac{1}{20}$

26 _____

27 To win a prize, a player picks a door and then a box behind the door. There are 3 doors and 4 boxes behind each door. How many prizes can be won if each box has a different prize?

A 3

B 4

C 7

D 12

27 _____

28 There are 10 marbles in a bag: 1 blue, 4 yellow, 3 red, and 2 white. If you choose a marble at random, which is the probability that you will NOT choose white?

F 20%

G 25%

H 75%

J 80%

28 _____

29 Juan needs to choose an outfit from his closet. He can choose from a red, green, or blue T-shirt and he can choose from a pair of blue, tan, or black pants. Which table shows all possible outfits if Juan picked one shirt and one pair of pants at random?

A

Outfits	
Shirts	Pants
red	blue
green	black
blue	tan

B

Outfits	
Shirts	Pants
red	blue
green	blue
blue	blue
red	black
green	black
blue	black
red	tan
green	tan
blue	tan

C

Outfits	
Shirts	Pants
red	blue
green	black
blue	tan
red	blue
green	black
blue	tan
red	blue
green	black
blue	tan

D

Outfits	
Shirts	Pants
red	blue
green	black
blue	tan
red	blue
green	black
blue	tan

29 _____

30 A jar contains 4 green marbles, 2 pink marbles, and 3 striped marbles. One marble is picked at random and then replaced. Then another marble is drawn at random again. What is the probability that both marbles are striped?

F $\frac{1}{81}$

H $\frac{1}{3}$

G $\frac{1}{9}$

J $\frac{1}{2}$

30 _____