## Practice ITBS Test <br> Math Concepts and Math Estimation

## Part 1: Math Concepts

## Directions:

This is a test of how well you understand the number system and the terms and operations used in math.

Four answers are given for each question. You are to choose the answer that you think is better than the others.

Then, on your answer sheet, find the row of answer spaces numbered the same as the question. Fill in the answer space for the best answer.

The sample on this page shows you what the questions are like and how to mark your answers.

## SAMPLE

S1 Which shape is a triangle?
A
B
C
D

## ANSWER

S1 (A) B (D)

1 At a Central School, recess begins at 11:55 am and ends at 1:00 pm. How long does recess last?

A 55 minutes
B 1 hour and 5 minutes
C 1 hour and 55 minutes
D 10 hours and 55 minutes

2 What is the value of $\mathbf{3}$ in 3792?
J 3
K 30
L 300
M 3000

3 Which of the following is a factor of 24?
A 3
B 5
C 7
D 48

4

| $\frac{1}{3}$ | $?$ | $\frac{1}{2}$ |
| :--- | :--- | :--- |

Which symbol below should replace the? to make a true number sentence?

J >
K =
L <
M None of the symbols above makes it true.

5 Which of the grids below is $\frac{1}{4}$ shaded?
A

C

B

D


6 If $6+x=18$, what is the value of $18-x$ ?

J 4
K 6
L 12
M 24

7 Which of the following occurs if 417.263 is rounded to the nearest tenth?

A The 1 is changed to a 2 .
B The 7 is changed to an 8 .
C The 2 is changed to a 3 .
D The 6 is changed to a 7 .

8 The numbers in each column of Row 1 and Row 2 are related to each other by the same rule. What number is missing in the first row?

| Row 1 | 1 | 3 | 9 | $?$ | 15 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Row 2 | 13 | 15 | 21 | 23 | 27 |

J 11
K 15
L 23
M 30

9 Len seals envelopes at a rate of 5 envelopes per minute. Craig seals envelopes at a rate of 11 envelopes per minute. M arc can seal a number of envelopes that is the average of the number that Len and Craig can seal in a minute. How many envelopes can Marc seal per minute?

A 5
B 8
C 11
D 16

10 A pint of water probably describes the volume of water in a $\qquad$ .
J abowl
K swimming pool
L bath tub
M lake

11 The best unit for measuring the cost of a new car is $\qquad$ -
A tens of dollars
B hundreds of dollars
C thousands of dollars
D millions of dollars

12 In a certain store, a bell rings once for every 10 customers who enter the store. If the bell rings 20 times one day, how many customers entered the store?
J 20
K 30
L 100
M 200

13 Mario has 3 brown socks and 5 white socks in his sock drawer. What is the least number of socks he should take out of his drawer without looking if he wants to get at least one matched pair?

A 8
B 5
C 3
D 2

14 Which of the following number sentences is true?

J $(7-4)+4>10$
K $(7-4)-4>10$
L $(7-4) \times 4>10$
M $(7-4) \div 4>10$

15 What number replaces the ? in the pattern below?

4, 8, 12, 16, ?, 24
A 18
B 20
C 21
D 23

16 The numerals 1 through 10 are each written on a separate slip of paper and dropped into a hat. A girl is going to pick a slip out of the hat without looking. What are the chances of her picking a number greater than 7 ?
J 3 in 7
K 7 in 10
L 4 in 10
M 3 in 10

17 Which of the following is a multiple of 3?
A 1
B 7
C 9
D 13

18 The number 3243 is between which two numbers?

J 3172 and 3230
K 3372 and 3697
L 3194 and 3267
M 3229 and 3231

19 What do the elements in this set of numbers have in common?

$$
\text { 3, 7, 9, 11, } 13
$$

A They are all even.
B They are all prime.
C They are all odd.
D They are all multiples of 3 .

20


Which of the following could be the point represented on the number line above?

J 0
K $\frac{1}{2}$
L 1
M $1 \frac{1}{2}$

21

| $\frac{1}{3}$ | $?$ | $\frac{3}{9}$ |
| :--- | :--- | :--- |

Which symbol replaces the ? above to make a true number sentence?

A >
B $=$
C <
D None of the symbols above makes it true.

22 What is the value of $6 x-2 y$ if $x=2$ and $y=4$ ?

J 4
K 8
L 12
M 20

23 What number multiplied by 0.7 is equal to 0.42?

A 0.06
B 0.6
C 6
D 60
$24 P$ is a positive number. What number could be equal to $P+1$ ?

J 0
K 1
L 3
M P

25 A grocer is stacking cans. The bottom row had 5 cans and each of the next rows has one fewer can than the row before until one can is on top of the stack. How many total cans will be used?

A 10
B 12
C 14
D 15

26 Which represents two hundred fifty-two thousand, one hundred ninety-six?
J 252,196
K 25,002,196
L 25,200,196
M 252,000,196

27 What 3 dimensional figure could be constructed by folding the flat shape below on the lines indicated?


A a pyramid
B a cube
C a sphere
D a cylinder

28


What 2 dimensional shape would be formed by slicing the sphere above in any direction?

J square
K triangle
L circle
M rhombus

## Part 2: Math Estimation

## Directions:

This is a test of your skill in estimating answers to math problems.

Four possible answers are given for each problem. Estimate the answer to each problem in your head. No scratch work is allowed.

Choose the answer that is the best estimate of the exact answer. Do not spend too much time on any one problem, or you will not finish all the problems.

## Remember, estimate. Do not try to compute exact answers.

The samples on this page show you what the problems are like and how to mark your answers.

## SAMPLE

S1 The closest estimate of $27+42$ is
A 50
B 60
C 70
D 80

## ANSWERS

( $27+42$ is about the same as
$30+40$, which is 70 .)


## S2 The product $29 \times 9$ is between

J 50 and 100
K 100 and 150
L 150 and 250
M 250 and 350
(29 $\times 9$ is a little less than
$30 \times 10$, which is 300 . So the answer is between 250 and 300.)

## S2 (J) (L)

29 The closest estimate of $18.03 \div 3$ is $\qquad$ .
A 3
B 4
C 5
D 6

30 Shirts cost $\$ 13.99$. Ties cost $\$ 5.25$. About how much will it cost to buy both a shirt and a tie?

J $\$ 18$
K $\quad \$ 19$
L $\$ 20$
M $\$ 21$

31 Which is the closest estimate of
$6 \frac{1}{10}+4 \frac{3}{4}+7 \frac{1}{8} ?$
A $6+4+7$
B $6+5+7$
C $7+4+8$
D $6+5+8$

32 Willie has 743 pennies in his collection. Jamie has 429 pennies in her collection. Which is the closest estimate of how many more pennies Willie has in his collection?
J 200
K 300
L 400
M 500

33 A bag of flour costs $\$ 21.32$. A bakery bought 39 bags this week. The closest estimate of how much money the bakery spent on flour is $\qquad$ .
A $\$ 80$
B $\$ 800$
C $\$ 8000$
D $\$ 80,000$

34 The closest estimate of 18,372-2953
is $\qquad$ .
J 1500
K 15,000
L 150,000
M 1,500,000

35

| Number of Marbles Owned |  |  |
| :---: | :---: | :---: |
| John | Wendy | Charles |
| 216 | 389 | 105 |

Which is the closest estimate of the total number of marbles?

A 600
B 700
C 800
D 900

36 A bookshelf is 4 feet 1 inch across. Eight books can be shelved on each foot of shelf space. What is the closest estimate of how many books can fit on the bookshelf?
J 20
K 30
L 40
M 50

37 An airplane takes off at 3:20 pm and lands at 5:13 рм. The closest estimate of the time of the flight is $\qquad$ -.
A 1 hour
B 1 hour 30 minutes
C 2 hours
D 2 hours 30 minutes

38 The closest estimate of $47.8 \div 5.97$ is $\qquad$ .
J 0.08
K 0.8
L 8
M 80

39 Spring water costs $\$ 0.89$ per gallon. About how much would $\mathbf{1 2}$ gallons cost?
A $\$ 1$
B $\$ 10$
C $\$ 20$
D $\$ 100$

40 One pizza costs $\$ 6.25$. The closest estimate of the cost of 3 pizzas is $\qquad$ .

J $\$ 10$
K $\quad \$ 12$
L \$18
M $\$ 24$

41 A car is travelling at 1.2 miles per minute. About how far will the car travel in one hour? ( 60 minutes $=1$ hour)

A 6 miles
B 60 miles
C 600 miles
D 6000 miles

42 The product $\$ 61.99 \times 31$ is $\qquad$ .
J less than \$1200
K between $\$ 1200$ and $\$ 1800$
L between $\$ 1800$ and $\$ 2400$
M morethan $\$ 2400$

43 The closest estimate of $675 \times 22$ is $\qquad$ .
A $600 \times 20$
B $600 \times 30$
C $700 \times 20$
D $700 \times 30$

44 Jackie finishes a race in 42.4 seconds. Fred finishes the race in 53.7 seconds. About how much faster did Jackie finish the race than Fred?
J 5 seconds
K 10 seconds
L 15 seconds
M 20 seconds

45 The closest estimate of $573 \div 68$ is $\qquad$ .

A 7
B 8
C 9
D 10

46 The closest estimate of $7324 \div 58$ is
$\qquad$ .
J 10
K 100
L 1,000
M 10,000
47 The closest estimate of $3 \frac{7}{8}+4 \frac{1}{2}$ is $\qquad$ .
A 7
B 9
C 10
D 11

48 The product $18 \times 19$ is $\qquad$ .
J less than 100.
K between 100 and 200.
L between 200 and 400 .
M more than 400.

## Math Problem Solving and Data Interpretation

## Part 1: Math Problem Solving

## Directions:

This is a test of your skill in solving math problems.
Work each problem and compare your answer with the possible answers given.
For some problems, four answers are given. You should choose the answer you think is better than the others are.

For some other problems, there are three possible answers and a 'Not Given'- meaning that the correct answer is not given. For these kinds of problems, if the correct answer is not given, you should fill in the last answer space.

The samples on this page show you what the problems are like and how to mark your answers.

## SAMPLES

S1 Jill's piano teacher told her to practice for 5 hours. After school, Jill practiced for 3 hours. How many hours does she have left to practice?
A 2
B 3
C 8
D Not Given

ANSWERS

S1 B C

S2 Kim planted 3 daisies, 2 roses, and 4 tulips. How can she figure out how many more tulips she planted than daisies?

J Add 2 and 4


K Subtract 3 from 4
L Add 3, 2 and 4
M Multiply 4 times 2

Directions: The picture below shows the price list for items sold at the Green School Book Store. Use the picture to answer questions 1-7.


1 Jose bought 2 binders at the bookstore.
How much did he spend?
J $\$ 2.00$
K $\$ 2.50$
L $\$ 4.00$
M Not Given

2 Lauren bought only calculators and spent $\$ 27.00$. How many calculators did she buy?
A 2
B 3
C 4
D 18

3 How much more does a ruler cost than a pencil?
A 25 $\$$
B 50¢
C $\$ 1.50$
D Not Given

4 Maurice bought 15 pencils. Which of the following correctly determines how much she should pay?
J $15+\$ 0.25=\$ 15.25$
K $15 \times \$ 0.25=\$ 3.75$
L $\quad 15 \times \$ 0.33=\$ 5.00$
M $15+\$ 0.33=\$ 15.33$

5 Nadia bought two rulers and a calculator. What else could she have bought if her total spent was $\$ 15.50$ ?
A 2 pencils
B 5 rulers
C 3 pens
D 2 binders

6 Sylvia bought 3 pens. How much more money did she spend than if she had bought only 2 pens?
A $\$ 0$ - she spent the same amount of money

B $\$ 0.25$
C $\$ 0.50$
D $\$ 1.00$

7 Greg bought 2 rulers at the book store. Hiram did not buy any rulers, but he spent the same amount of money as Greg.
Which of the following could Hiram have purchased?
J 3 pencils and 1 pen
K 3 pencils and 2 pens
L 3 pens
M None of the above could have been the items that Hiram purchased.

Mary and Tim were selected to compete in the National Spelling Bee in Washington, D.C. Answer questions 8-11 about their trip.

8 Mary is staying at a hotel 3722 feet from the auditorium where the Spelling Bee is taking place. Tim's hotel is 2573 feet from the auditorium. How many more feet does Mary have to walk than Tim to get to the auditorium?

J 6295 feet
K 1259 feet
L 1149 feet
M 129 feet

9 At the competition, one fifth of the words spelled had 9 letters. Three fifths of the words had 10 letters. What fraction of the words spelled had 9 or 10 letters?
A $\frac{3}{25}$
B $\frac{3}{5}$
C $\frac{4}{10}$
D $\frac{4}{5}$
10 Cash prizes were awarded to some of the top contestants. The total cash prize awarded was $\$ 282.72$ and was split evenly among the contestants who were awarded prizes. What other information would you need to know how much money each winning contestant received?

J The total number of contestants in the Spelling Bee

K The number of contestants who received a share of the cash prize
L The number of words each contestant spelled correctly.
M The number of rounds in the Spelling Bee

11 The White House is 67.2 yards from the auditorium. The Lincoln Memorial is 8 times farther from the auditorium than the White House. What is the distance from the auditorium to the Lincoln Memorial?
A 8.4 yards
B 75.2 yards
C 537.6 yards
D 5376 yards

12 There are 270 pieces of mail to be delivered on the first day the post office opens. If each driver can deliver up to 45 pieces of mail each day, what is the minimum number of drivers needed to deliver all the mail?

J 4 drivers
K 5 drivers
L 6 drivers
M 7 drivers

13 How many total rolls of stamps were sold this week?

Rolls of Stamps Sold

| Day | Number of Rolls |
| :---: | :---: |
| Monday |  |
| Tuesday | $\{\underline{\square}]$ |
| Wednesday |  |
| Thursday |  |
| Friday |  |
| Saturday |  |

Key: $\left\{\begin{array}{l}{[10} \\ \}\end{array}=10\right.$ rolls of stamps
A 27
B 50
C 270
D 300

14 Gary has $\$ 5.00$ to spend on stamps. He buys a roll of ten 32 cent stamps. If he spends the rest of his money on 6 cent stamps, how many 6 cent stamps does he buy?

J 180
K 60
L 30
M 10

15 Miles the postman drinks water while walking his delivery route each day. He pays $\$ 1.09$ per pint of water. What other information would allow you to determine how much money he spends on water each day?
A How many miles long is his route?
B How many pints of water does he drink each day?
C How much money does he earn each day?

D How much does a gallon of water cost?

16 Ms. Murdoch bakes 6 loaves of bread each hour. There are 18 slices of bread in each loaf. How many slices of bread does she make each hour?


J 3
K 78
L 94
M 108

17 A total of 140 cupcakes are made each day at the bakery. On M onday, only 75 cupcakes were sold. How many cupcakes that were made on Monday were not sold on Monday?

A 65
B 70
C 75
D 215

18 It takes 430 grams of sugar to make one batch of icing. The bakery makes 12 batches of icing each week. How many total grams of sugar are used for icing each week?
J 1290 grams
K 4324 grams
L 5160 grams
M 48,600 grams

## Part 2: Data Interpretation

## Directions:

This is a test of your ability to get and use information from graphs and tables.

Four answers are given for each problem. You are to choose the answer that you think is better than the others.

Then, on your answer sheet, find the row of answer spaces numbered the same as the question. Fill in the answer space for the best answer.

The samples on this page show you what the problems are like and how to mark your answers.

## SAMPLE

Use this graph to answer questions S 1 and S 2 .

| Favorite Sport of Students <br> in Ms. Shea's Class |  |
| :--- | :--- |
| Football |  |
| Softball |  |
| Tennis |  |
| Bowling |  |

Each picture stands for one student.
S1 How many students like football best?
A 2
B 3
C 4
D 6

S2 Which sport is the favorite of the most students?
J Tennis
L Softball
K Football
M Bowling

## ANSWERS

S1 (A) (C) (D)
S2 (J) $(\mathbb{M}$

Directions: Use the graph below to answer questions 19-21.


19 About how many dollars worth of books were sold in 1991?
A $\$ 40$
B $\$ 60$
C $\$ 80$
D $\$ 100$

20 In which year was the dollar amount of sales most nearly the same as in 1992?
J 1990
K 1991
L 1993
M 1994

21 How much more money was earned at the book sale in 1996 than the sale in 1991?

A $\$ 160$
B $\$ 100$
C $\$ 80$
D $\$ 60$

Directions: Use the graph below to answer questions 22-24.


22 How much time did Alex spend reading per night?
J 60 minutes
K 55 minutes
L 50 minutes
M 45 minutes

23 How many students listed spent more time reading per night than Sonya?
A 0
B 2
C 3
D 5

24 How much time did Alex and Leo combined spend reading per night?
J 1 hour
K 1 hour 30 minutes
L 2 hours
M 9 hours

Directions: Use the graph below to answer questions 25-28.


25 Which city shown on the graph had the smallest population in 1960?

A Evansville
B Fort Wayne
C Gary
D South Bend

26 In 1990, you visited the most populous city in Indiana. Which city did you visit?

J Evansville
K Fort Wayne
L Gary
M South Bend

27 All of the cities listed showed a decrease in population between 1960 and 1990 EXCEPT

A Evansville
B Fort Wayne
C Gary
D South Bend

28 About how many more people lived in Gary in 1960 than in 1990?

J 10,000
K 40,000
L 60,000
M 100,000

Directions: The pictograph below shows the favorite type of dog for sixth graders in a school. Use the pictograph to answer questions 29-32.

Sixth Graders' Dogs

| Retriever | \% \% \% \% \% \% |
| :---: | :---: |
| Shi Tzu | \% |
| Collie | \% |
| Terrier | \%易易 |
| Shepherd | \%\% \% \% \% \% |

Key: $=2$ votes.
29 How many sixth graders chose Shepherds as their favorite type of dog?

A 6
B 8
C 12
D 15

30 All of the sixth graders in the school voted for one and only one dog listed. How many sixth graders are there in all?
J 20.5
K 21
L 41
M 50

31 How many more people chose Terriers as their favorite dogs than Collies?
A 1
B 2
C 3
D 4

32 Each of the sixth graders voted for the type of dog that he or she has at home. Which type of dog is owned by the least number of sixth graders?
J Retriever
K Shi Tzu
L Terrier
M Shepherd


## Math Computation

## Directions:

This is a test of math computation.
After each problem are three answers and an " N " meaning that the correct answer is not given.

Work each problem and compare your answer with the answers that are given.

If your answer matches a given answer, fill in the answer space on your answer sheet that has the same letter as that answer.

If your answer is not given, fill in the last answer space.

The samples on this page show you what the problems are like and how to mark your answers.

## SAMPLES

$$
\begin{aligned}
& \text { S1 } 2+6=
\end{aligned} \begin{array}{ll}
\text { A } & 7 \\
\text { B } & 8 \\
\text { C } & 9 \\
\text { D } & \mathrm{N}
\end{array}
$$

S2 $\begin{aligned} 4 & \text { J } 7 \\ \times 3 & \text { K } 9\end{aligned}$
L 12
M N

## ANSWERS

S1 (A) (C)
(D)
S2 $(\mathbb{K} \longrightarrow M$

| $1245+92+188=$ | A 625 |
| ---: | :--- |
|  | B 525 |
|  | C 515 |
|  | D |

$2 \begin{array}{r}\$ 2.50 \\ +\quad 0.50 \\ \hline\end{array}$
$3 \quad 201$ - 115

A 196
B 186
C 96
D N
$4 \begin{array}{r}309 \\ \times \quad 5 \\ \hline\end{array}$
J 195
K 314
L 1545
M N
$5 \quad \frac{1}{8}+\frac{1}{2}=$
A $\frac{2}{8}$
B $\frac{3}{8}$
C $\frac{5}{8}$
D N
$6300 \div 50=$
$7 \quad 2 \frac{3}{4}+1 \frac{1}{4}=$

J 6
K 60
L 150
M N

A 3
B $3 \frac{3}{4}$
C $3 \frac{1}{2}$
D N
$8 \quad 156.7-23.4=$
J 33.3
K 133.3
L 179.1
M N
$\begin{array}{r}53 \\ \times \quad 49 \\ \hline\end{array}$
A 477
B 2547
C 2597
D N
$10 \begin{array}{r}2 \frac{3}{5} \\ +\quad 7 \frac{2}{5} \\ \hline\end{array}$
J 9
K $\quad 9 \frac{5}{10}$
L 10
M N
$114.32 \div 6$
A 0.072
B 0.72
C 7.2
D N
$1 2 7 \longdiv { 4 2 6 } =$
J $60 \mathrm{R1}$
K 60 R6
L 61 R6
M N
$13 \frac{6}{15}-\frac{4}{15}=$
A $\frac{2}{15}$
B $\frac{5}{15}$
C $\frac{10}{15}$
D N
$14 \begin{array}{r}3794 \\ +\quad 437 \\ \hline\end{array}$
J 3121
K 4121
L 4231
M N



Mathematics: Concepts and Estimation

| (A) B C D | (25) (A)C |
| :---: | :---: |
| (J) K (L) M | 26 (J) K (L) M |
| (A) B C | (27) (A)CD |
| (J) (K) (L) | 28 (J) K (L) M |
| (A)B C | (29 (A)B C D |
| (J) (K) (L) | (30 J K L M |
| (A) B C ( D | (31) (A) C D |
| (J) (K) (L) | (32 (J) K L M |
| (A)B C | 33 (A) B C |
| (J) (K) (L) | (34) (J L M |
| (A) B C D | (35 (A) B C D |
| 2 (J) (K) (M) | (36 J K L M |
| 3 (A) C C | (37) (A) C D |
| 4) (J) (L) | (38 (J) K L M |
| ( $)^{(d) B}$ ( ${ }^{\text {d }}$ | (39 (A) C © |
| (1) K (L) | 40 (J) K L M |
| 17 (A) C ( D | 41 (A)B C D |
| 8 (J) (K) M | 42 (J) K (L) |
| (19 (A) B ( D | 43 (A)B C D |
| 0 (J) (K) M | 44 (J) K (L) |
| (21) (A)CD | 45 (A)B C D |
| (22) (J) (L) | 46 (J) K ( M |
| (23) B C D | 47 (A) B C D |
| (24) (J) (L) M | 48 (J) K ( M |

Math Problem Solving
(1) (A)CD
(2) (J) (L) M
(3) (A) CD
(4) (J) (L) M
(5) (A) C (D)
(6) (J) (L)
( 7 ( B C
8 (J) (L) M
(9) (A) C

10 (J) (K) M
(11) (A) C (D)

12 (J) (K) (M)
13 (A) B (D)
(14) (J) (L) M
(15) (A) C D

16 (J) (K) M
17 (A) B (D)
18 (J) (K) M

## ITBS Grade 6 Answer Sheet

Data Interpretation

## 19 (A) B (D)

20 (J) (K) M
(21) (A) C

22 (J) (K) M
23 (A) B (D)
(24) (J) (L) M

25 (A) B (D)
26 (J) (K) M
27) (A) B (D)

28 (J) (K) (M)
29 (A) B (D)
30 (J) K (L)
(31) (A) B (D)
(32) (J) (L) M

Mathematics Computation

| 1) (A) C (D) | 22 (J) K (L) |
| :---: | :---: |
| (2) (J) (L) | 23 (A) B C D |
| (3) B C D | (24) (J) (L) M |
| (4) K (L) M | 25 (A) B C ( D |
| (5) B C D | 26 (J) ( L M |
|  | (27) (A) C (D) |
| (7) B C D | 28 (J) (L) M |
| 8 (J) K ( M | 29 (A) B C D |
| (9) B C D | (30) (J) (L) M |
| 10 (J) K (L) | (31) (A) C (D) |
| (11) (A)C (D) | (32) (J) (L) M |
| 11 (J) K (L) | (33 (A) B ( D |
| (13) (A)C (D) | (34) (J) (L) M |
| (14) (J) (L) | (35 (A) B (D) |
| (15 (A) B ( D | (36) (J) (L) M |
| 11 (J) K (L) M | (37) (A) C D |
| (17) (B) C D | (38 (J) (L) M |
| 18 (J) K (L) M | 39 (A) B C D |
| (19 (A) C C | 40 (J) (K) M |
| 20 (J) K (L) M | 41 (A) B C D |

