

## Math Section Practice for SCAT Test

(Revised version)

### 1. What is SCAT?

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### 2. Why will I take SCAT?

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Also if you score high on SCAT, you can put it into your public school GT program application package to increase your chance of accepting to the GT program.

### 3. Does your practice work?

The SCAT is the registered trade mark of ETS. Author of this practice has not seen any of the test. But author has the SCAT sample mini test from Johns Hopkins University CTY. I studied the mini test to be familiar with the question format and pattern. Then I created many practice questions for my son to be familiar with the test. My son was 6 year old and in grade 2 in a private school. I used this practice for him 2 times. He scored 99% for Math section of SCAT test. That is 99% comparing with 4th grader nationwide.

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<http://120perhour.com/contactus.htm> or email to [support@120PerHour.com](mailto:support@120PerHour.com)

**The Answers have been added starting at Page 36**

## Math Section

Directions:

Each of the following questions has two parts.

One part is in Column A.

The other part is in Column B.

You must find out if one part is greater than the other, if the parts are equal, or if not enough information is given for you to decide.

Then, choose one of the four answers below:

**A if the part in Column A is greater**

**B if the part in Column B is greater**

**C if the two parts are equal**

**D if not enough information is given for you to decide.**

	<u>Column A</u>	<u>Column B</u>
-----	<b>Grade 2-3</b>	-----
1.	4 + 3	6 + 1
2.	:20 hours	20 minutes
3.	800 minus 130	800 minus 140
4.	0	0 x 5

i. The next odd number after 9

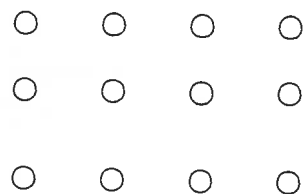
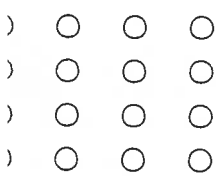
The next whole number after 9

i. Number of dots

Number of dots

( 4 x 4 dots )

( 3 x 4 dots )



3/6

3/7

$$\begin{array}{r} 25 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 25 \\ 25 \\ 25 \\ +25 \\ \hline \end{array}$$

Number of tens in 58

Number of hundreds in 458

i. Distance around the square if each side has length 3

Distance around the triangle if each side has length 4

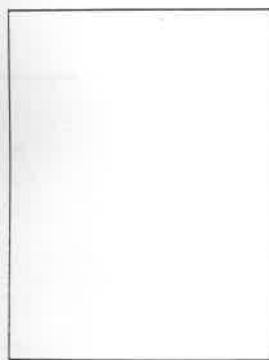
----- Grade 4 - 5 -----

1. Value of 5 Nickels and 1 dime

Value of 3 dimes and 1 nickel

( 4 cm x 6 cm )

( 8 cm x 2 cm )



2. The area of this rectangle

The area of this rectangle

$$\begin{array}{r} 3. \quad 24 \\ \quad \times 5 \\ \quad \hline \end{array}$$

$$\begin{array}{r} 24 \\ 24 \\ 24 \\ +24 \\ \hline \end{array}$$

4. 1, 2, 3, 4, ....., 96, 97, 98, 99

The number of odd integers in the

The number of even integers in the

sequence above

sequence above

5. Eighty percent can be represented by  $k/50$ .

$k$

45

6. The land area of a country with 20 people per square mile

The land areas of a country that measures 500,000 square miles

7.  $3x$

$2x$

8.  $349 \times 2$

$349 \times 2.1$

9. A whole number that is greater than 23

A whole number that is less than 24

10. The number of days in a year

352 days

----- Grade 6 -----

**Note: Letters such as x, n, and k stand for**

**real numbers. If the same letter appears in both columns of a question it stands for the same number**

1.  **$0.810 + 0.005$**

**$0.081 + 0.500$**

2. The value of x if  $4x - 1 = 19$

The value of y if  $5y + 1 = 21$

3.  $n < 11$   
n

9

4. The value of a number if 7 times the number is 7

The value of a number if 4 times the number is 4

5. The greatest odd number less than 37

The least odd number greater than 35

6.  $4 \text{ hours } 40 \text{ minutes} + 3 \text{ hours } 40 \text{ minutes}$

$9 \text{ hours } 20 \text{ minutes} - 40 \text{ minutes}$

7. 33%

4/11

- |     |                           |                              |
|-----|---------------------------|------------------------------|
| 8.  | A distance of 20 meters   | A distance of 1/20 kilometer |
| 9.  | Number of days in month A | 29 days                      |
| 10. | $5 \times 4$              | $5 \times \pi$               |

Note: Grade 6 is the last grade to take SCAT. 7<sup>th</sup> and 8<sup>th</sup> graders will take SAT instead of SCAT for the CTY screening.

**Practice #1: Grade 2-3**

**A if the part in Column A is greater**  
**B if the part in Column B is greater**  
**C if the two parts are equal**  
**D if not enough information is given for you to decide.**

<u>Column A</u>	<u>Column B</u>
-----------------	-----------------

This section is to test the basic math caculation.  
Only + , - X are for grade 2-3. Others are extra practices that might inspire your kids. My son loves these extras.

- |     |                |              |                   |
|-----|----------------|--------------|-------------------|
| 1a. | $4 + 5$        | $8 + 1$      |                   |
| 1b. | $14 + 25$      | $40 + 1$     |                   |
| 1c. | $-33$          | $-3$         |                   |
| 1d. | $-9$           | $0 - 10$     |                   |
| 1e. | $12345 - 4$    | $12345 - 14$ |                   |
| 1f. | $4 - 12345$    | $14 - 12345$ |                   |
| 1g. | $\pi - 3$      | $0$          |                   |
| 1h. | $\pi \times 3$ | $10$         |                   |
| 1i. | $\sqrt{2}$     | $\sqrt{3}$   | (extra, optional) |

Test the basic concept of fraction, multiplication, value of position, shapes

7.  $\frac{3}{7}$

$\frac{3}{8}$

8. 
$$\begin{array}{r} 27 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 27 \\ 27 \\ 27 \\ +27 \\ \hline \end{array}$$

9. Number of tens in 48

Number of hundreds in 548

10. Distance around the square if each side has length 3

Distance around the triangle if each side has length 4

practice #2 :

----- Grade 4 - 5 -----

**A if the part in Column A is greater**  
**B if the part in Column B is greater**  
**C if the two parts are equal**  
**D if not enough information is given for you to decide.**

Column A

Column B

This section is to test the basic math calculation.

1a. Value of 3 Nickels and 1 dime

Value of 2 dimes and 1 nickel

1b Value of 5 Nickels and 1 dime

Value of 3 dimes and 1 nickel

1c Value of 2 Nickels and 1 quarter

Value of 2 dimes and 3 nickels

1d Value of 7 Nickels and 3 dime

Value of 2 dimes and 2 quarter

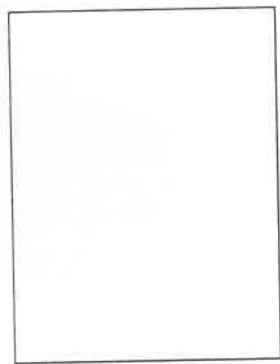
1e Value of 5 quarter and 1 dime

Value of 10 dimes and 9 nickel

Test the basic concept of geometry. The perimeter, area of square, rectangle. The circumference of circles. Etc.

(3 cm x 5 cm)

( 6 cm x 1 cm )



2a. The area of this rectangle  
 (Note: Drawings are not to scale.)

The area of this rectangle

2b. the circumference of a circle with radius of 2 inches

the circumference of a circle with diameter of 3 inches

2c. the circumference of a circle with radius of 5 inches

the circumference of a circle with diameter of 11 inches

2d. the circumference of a circle with radius of 2 inches

the perimeter of a rectangle with long side of 4 inches short side of 3 inches

2e. the perimeter of a square with one side of 4 inches

the perimeter of a rectangle with long side of 5 inches short side of 3 inches

2f. the circumference of a circle with radius of 3 inches

the perimeter of a square with one side of 6 inches

Test the basic concept of multiplication – repeated addition.

3.	29	29
	x5	29
	----	29
		+29
		----

**Test the basic concept of odd number, even number, prime number, composite number**

4a.  
**1, 2, 3, 4, ....., 96, 97, 98, 99**

The number of odd integers in the sequence above

The number of even integers in the sequence above

4aa.  
**1, 2, 3, 4, ....., 96, 97, 98, 99, 100**

The number of odd integers in the sequence above

The number of even integers in the sequence above

4ab.  
**1, 2, 3, 4, ....., 96, 97, 98, 99, 100**

The number of odd integers in the sequence above

The number of composite integers in the sequence above

4b.  
**1, 2, 3, 4, ....., 96, 97, 98, 99**

The number of prime numbers in the sequence above

The number of composite numbers in the sequence above

4c.  
**1, 2, 3, 4, ....., 96, 97, 98, 99, 100**

The number of square numbers in the sequence above

The number of cube numbers in the sequence above

4d.  
**1, 2, 3, 4, ....., 96, 97, 98, 99**

The number of prime numbers in the sequence above

The number of cube numbers in the sequence above

**Test the basic concept of percent and fraction. The !, square and square roots are extra!**

5a. Sixty percent can be represented by  $k/50$ .

$k$

$2^2 + 5^2$

Thank you for reading. Best wishes to your child's future.  
You are welcome to send to us any suggestion, or any error you find. We will correct error in next revision.

The END.

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### 1. What is SCAT?

School and College Ability Test (SCAT) which is developed by Educational Testing Service (the company that administers the SAT) as a talent search achievement test for grades 2-8. The test given is two-to-three grades higher than normally given to students this age. Students in grade 4-5 take the Intermediate SCAT designed for 6-9 graders. Students in grade 6 and above take the Advanced SCATG designed for 9-12 graders. The test measures verbal and mathematical reasoning ability. This book is the Advanced SCAT math section for students in grade 6 and above.

### 2. Why will I take SCAT?

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My son has worked on all of these problems. He got SAT I math section 700 when he was 8 year old. He won AMC8 top 1% when he was 9 year old. He qualified for *American Invitational Mathematics Examination (AIME)* when he just turned 10 year old through AMC 10.

About **AMC 8**, **AMC 10** and **AIME**, please go to

[http://en.wikipedia.org/wiki/American\\_Invitational\\_Mathematics\\_Examination](http://en.wikipedia.org/wiki/American_Invitational_Mathematics_Examination)

[http://en.wikipedia.org/wiki/American\\_Mathematics\\_Contest](http://en.wikipedia.org/wiki/American_Mathematics_Contest)

to find out the details.

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The Answers have been added starting at Page 28





23  $\sqrt{x}$   $x > 0$   $\sqrt{x^2}$

24  $32+(x+y)$   $x+(y+32)$

The sale price of Mr. Goodnick's house was \$73,000, 6 percent of which she paid to an agent as a commission.

25. The agent's commission \$4,400

26. 10% of 60% of x 20% of 30% of x

27 The sum of the 3 greatest distinct integers that are less than 2. The sum of the 2 least distinct integers that are greater than -1.

28  $|x| + 2 = 5$   
 x -3

====Practice 2====

1  $\sqrt{389}$  20

$\frac{x^2}{3} = \frac{5}{6}$

2 x 3

3  $\frac{18}{18-15}$   $\frac{18}{18-12}$

m < 0

4  $3(m+15)$   $3m+45$

A rope, 63 meters long, is cut crosswise into 3 pieces whose lengths are in the ratio of 1 to 3 to 5.

5 The length of the longest piece 34 meters

6 The number of integers between 15 and 51 that are squares of integers The number of integers between 6 and 126 that are cubes of integers

$x(x-2)=0$

7 x 1

m is integer

8 The remainder when  $m^3-m$  is divided by 2. 1

9  $500 \times 14$   $1,000 \times 7$

x=10 and y=5

10  $(x-y)^2$   $x^2-y^2$



The perimeter of the rectangle above is 16.

11 W+L 4

$x \neq 0$

12  $\frac{x+1}{x}$   $\frac{1}{x}$

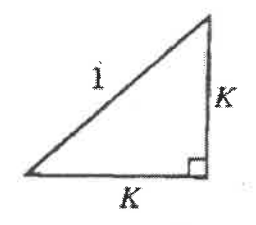
A cord that is 20 meters long is cut into three sections.

13 The length of the longest piece The sum of length of the two shorter pieces.

$x > y$

14 x-y 0

15 The remainder when 43 is divided by 5 The remainder when 52 is divided by 7



16  $K^2$  1

17  $2(-x)$   $3x$

$m \neq 2$

18  $\frac{3}{m-2} - 1$   $\frac{m-5}{2-m}$

Ms. Smith got an 8 percent cost-of-living raise Of \$20 per week

19 Ms. Smith's new Weekly salary \$260

20  $1-\frac{2}{3}$   $1-\frac{3}{4}$

A total of 400 tickets to a concert were sold, some at \$10 each and some at \$5 each.

21. The total receipts from the 400 tickets sold \$3,000

22.  $\sqrt{80} + x$   $9+x$

23  $\frac{1}{9}\%$  0.11

24 The difference between 2 numbers, each of which is between 3 and 4 The sum of 2 numbers, each of which is between 1 and 2

25  $(x+x)^2$   $x^2+2x^2+x^2$

26  $\frac{r}{t}$   $2r=3t, t > 0$   $r+t$

Mr. Smith traveled a distance of 100 kilometers, half the distance at 40 kilometers per hour and half at 80 kilometers per hour.

27 Mr. Smith's average speed for the 100 kilometers traveled. 60 kilometers per hour

$1 < n < 5$ , n is an integer

28 The sum of first n odd integers that are greater than zero  $n^2-1$

====Practice 3====

The average (arithmetic mean) of 2 positive integers is equal to 31 and each of the integers is greater than 26.

1 The greater of the 2 integers 36

For all real numbers p and r,  $p \diamond r = pr - p + r$ .

2  $(-4) \diamond 5$   $5 \diamond (-4)$

$n < 0$ ,  $q > 0$ , and  $r > 0$

3  $(2n)(2q)(2r)$   $2[(n)(q)(r)]$

P and Q are points on a number line. The coordinate of P is 5 and the distance between P and Q is 12.

4 The coordinate of Q 16

5 The number of hundreds in 834 The number of thousands in 7,234

$0.7+0.3+0.8+x=3$

6 x 1.1

7  $\frac{7+8+9+10}{4}$   $\frac{8+9+10}{3}$

Jane is taller than Peter and Peter is shorter than Karen

8 Jane's height Karen's height

9  $3\left(\frac{r}{3} + \frac{s}{4} + \frac{5}{3}\right)$   $r-s+5$

10  $x^2+y$   $x^2-y$

11 The least positive integer that is divisible by both 14 and 21 The least positive integer that is divisible by both 14 and 28

Mrs. Jones sold two houses for \$80,000 each. One house was sold at a 20 percent loss and the other at a 20 percent gain.

12 The gain minus the loss 0

13  $3-\frac{4}{4}$   $4-\frac{4}{2}$

14 The average (arithmetic mean) of 65, 67, and 69 The average (arithmetic mean) of 64 and 70

15  $\frac{2}{3} + \frac{3}{4} + \frac{4}{5}$   $\frac{3}{2} + \frac{4}{3} + \frac{5}{4}$

$x-7=7$   
 $-7+y=7$

16 x y

The discount price of a sweater is 85 percent of its original cost and the discount price of a skirt is 80 percent of its original cost

17 the discount price of the sweater. the discount price of the Skirt.

$\sqrt{2x}=8$

18 x 25

19  $\left(\frac{1}{5} \times \frac{17}{19}\right) + \left(\frac{1}{5} \times \frac{3}{19}\right)$   $\frac{1}{5}$

$b+c=2$   
 $c+a=3$

20  $b+8+c+a$  13

A certain automobile travels at the constant rate of 185 miles per  $\frac{1}{2}$  tank of gasoline.

21 The number of miles the automobile travels per  $\frac{3}{4}$  tank of gasoline. 300

22  $2^3 \cdot 3 \cdot 5^9 \cdot 7^{11}$   $3^3 \cdot 5^9 \cdot 7^{11}$