



# Math Test – No Calculator

25 MINUTES, 20 QUESTIONS

Turn to Section 3 of your answer sheet to answer the questions in this section.

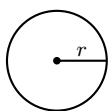
## DIRECTIONS

For questions 1-15, solve each problem, choose the best answer from the choices provided, and fill in the corresponding circle on your answer sheet. For questions 16-20, solve the problem and enter your answer in the grid on the answer sheet. Please refer to the directions before question 16 on how to enter your answers in the grid. You may use any available space in your test booklet for scratch work.

## NOTES

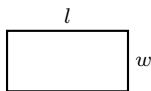
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4. All figures lie in a plane unless otherwise indicated.
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## REFERENCE

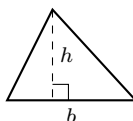


$$A = \pi r^2$$

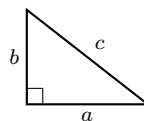
$$C = 2\pi r$$



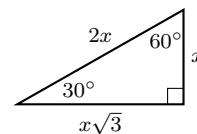
$$A = lw$$



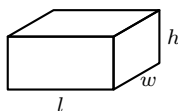
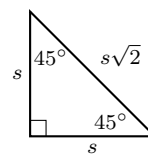
$$A = \frac{1}{2}bh$$



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



Special Right Triangles



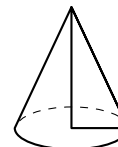
$$V = lwh$$



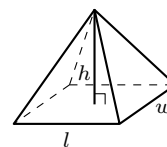
$$V = \pi r^2 h$$



$$V = \frac{4}{3}\pi r^3$$



$$V = \frac{1}{3}\pi r^2 h$$



$$V = \frac{1}{3}lwh$$

The number of degrees of arc in a circle is 360.

The number of radians of arc in a circle is  $2\pi$ .

The sum of measures in degrees of the angles of a triangle is 180.



1

Christine sells real estate. She is paid 4% of the sale price of every house she sells. What is Christine paid for selling a house at the sale price of \$300,000?

- A) \$400
- B) \$1,200
- C) \$4,000
- D) \$12,000

2

For what value(s) of  $x$  is  $(x + 4)(x - 5) = 0$  true?

- A) -4 and 5
- B) -4 only
- C) 4 and -5
- D) 4 only

3

Which of the following inequalities orders the numbers 0.2, 0.01, and  $\frac{1}{7}$  from least to greatest?

- A)  $0.2 < 0.01 < \frac{1}{7}$
- B)  $0.01 < 0.2 < \frac{1}{7}$
- C)  $0.01 < \frac{1}{7} < 0.2$
- D)  $\frac{1}{7} < 0.01 < 0.2$

4

Given that  $4x + 1 = 5$ , what is the value of  $(x + 1)^2$ ?

- A) 1
- B) 2
- C) 4
- D) 16



5

What vector is the result of adding the vectors  $\langle -1, 2 \rangle$ ,  $\langle -2, -3 \rangle$ , and  $\langle 4, -2 \rangle$ ?

- A)  $\langle 8, 12 \rangle$
- B)  $\langle -1, 3 \rangle$
- C)  $\langle 3, -3 \rangle$
- D)  $\langle 1, -3 \rangle$

6

What value of  $x$  makes  $\frac{4}{5}x + 3 = 19$ ?

- A)  $\frac{88}{5}$
- B)  $\frac{64}{5}$
- C) 16
- D) 20

7

In Mountainview, the daily low temperatures, in degrees Fahrenheit ( $^{\circ}\text{F}$ ), during the first week of January were 3, -12, 15, 30, 9, -2, and 6. To the nearest degree Fahrenheit, what was the mean daily low temperature for the week?

- A)  $7^{\circ}\text{F}$
- B)  $9^{\circ}\text{F}$
- C)  $16^{\circ}\text{F}$
- D)  $19^{\circ}\text{F}$

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Assume that  $x$ ,  $y$ , and  $z$  are real numbers. If  $x > z$  and  $(x+y) > (y+z)$ , then what is true of  $z$ ?

- A)  $z$  must have the same sign as  $y$
- B)  $z$  must be positive
- C)  $z$  must be positive
- D)  $z$  can be any real number



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What is the slope of the line given by the equation  $3x + 5y = -4$

- A)  $\frac{3}{5}$
- B)  $\frac{5}{3}$
- C)  $-\frac{3}{5}$
- D)  $-\frac{5}{3}$

10

One leg of a right triangle is 5 meters long and the other leg is 10 meters long. How many meters long is the hypotenuse?

- A)  $5\sqrt{5}$
- B)  $\sqrt{50}$
- C)  $10\sqrt{5}$
- D)  $5\sqrt{3}$

11

Christine sells real estate. She is paid 4% of the sale price of every house she sells. What is Christine paid for selling a house at the sale price of \$300,000?

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- B) \$1,200
- C) \$4,000
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12

For what value(s) of  $x$  is  $(x + 4)(x - 5) = 0$  true?

- A) -4 and 5
- B) -4 only
- C) 4 and -5
- D) 4 only



13

Which of the following inequalities orders the numbers 0.2, 0.01, and  $\frac{1}{7}$  from least to greatest?

- A)  $0.2 < 0.01 < \frac{1}{7}$
- B)  $0.01 < 0.2 < \frac{1}{7}$
- C)  $0.01 < \frac{1}{7} < 0.2$
- D)  $\frac{1}{7} < 0.01 < 0.2$

14

Given that  $4x + 1 = 5$ , what is the value of  $(x + 1)^2$ ?

- A) 1
- B) 2
- C) 4
- D) 16

15

What vector is the result of adding the vectors  $\langle -1, 2 \rangle$ ,  $\langle -2, -3 \rangle$ , and  $\langle 4, -2 \rangle$ ?


- A)  $\langle 8, 12 \rangle$
- B)  $\langle -1, 3 \rangle$
- C)  $\langle 3, -3 \rangle$
- D)  $\langle 1, -3 \rangle$

**DIRECTIONS**

For questions 16–20, solve the problem and enter your answer in the grid, as described below, on the answer sheet.

- Although not required, it is suggested that you write your answer in the boxes at the top of the columns to help you fill in the circles accurately. You will receive credit only if the circles are filled in correctly.
- Mark no more than one circle in any column.
- No question has a negative answer.
- Some problems may have more than one correct answer. In such cases, grid only one answer.

5. **Mixed numbers** such as  $3\frac{1}{2}$  must be gridded

as 3.5 or  $7/2$ . (If  is entered into the

grid, it will be interpreted as  $\frac{31}{2}$ , not  $3\frac{1}{2}$ .)

6. **Decimal answers:** If you obtain a decimal answer with more digits than the grid can accommodate, it may be either rounded or truncated, but it must fill the entire grid.

Answer:  $\frac{7}{12}$

Write answer in boxes. →

← Fraction line

Grid in result.

	7	/	1	2
	•	•	•	•
	0	0	0	0
1	1	•	1	1
2	2	2	•	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
•	7	7	7	7
8	8	8	8	8
9	9	9	9	9

Answer: 2.5

← Decimal point

	2	.	5
	•	•	•
	0	0	0
1	1	1	1
2	•	2	2
3	3	3	3
4	4	4	4
5	5	5	•
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

Acceptable ways to grid  $\frac{2}{3}$  are:

	2	/	3
	•	•	•
	0	0	0
1	1	1	1
2	•	2	2
3	3	3	•
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8

.	6	6	6
•	•	•	•
	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	•	•	•
7	7	7	7
8	8	8	8

.	6	6	7
•	•	•	•
	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	•	•	6
7	7	7	•
8	8	8	8

Answer: 201 – either position is correct

	2	0	1
	•	•	•
	0	•	0
1	1	1	•
2	•	2	2
3	3	3	3

2	0	1	
•	•	•	•
•	•	0	0
1	1	•	1
•	2	2	2
3	3	3	3

**NOTE:** You may start your answers in any column, space permitting. Columns you don't need to use should be left blank.



16

What value of  $x$  makes  $\frac{4}{5}x + 3 = 19$

17

In Mountainview, the daily low temperatures, in degrees Fahrenheit ( $^{\circ}$  F), during the first week of January were 3, -12, 15, 30, 9, -2, and 6. To the nearest degree Fahrenheit, what was the mean daily low temperature for the week?

18

Assume that  $x$ ,  $y$ , and  $z$  are real numbers. If  $x > z$  and  $(x+y) > (y+z)$ , then what is true of  $z$ ?

19

What is the slope of the line given by the equation  $3x+5y=-4$

20

One leg of a right triangle is 5 meters long and the other leg is 10 meters long. How many meters long is the hypotenuse?



# Math Test – Calculator

55 MINUTES, 38 QUESTIONS

Turn to Section 4 of your answer sheet to answer the questions in this section.

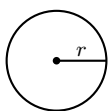
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## NOTES

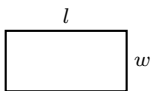
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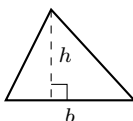


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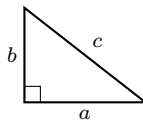
$$C = 2\pi r$$



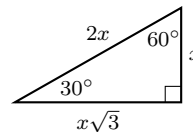
$$A = lw$$



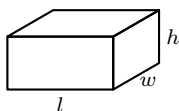
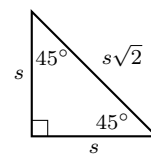
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Special Right Triangles



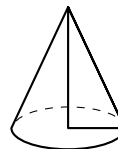
$$V = lwh$$



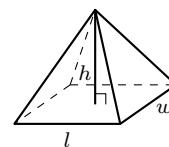
$$V = \pi r^2 h$$



$$V = \frac{4}{3}\pi r^3$$



$$V = \frac{1}{3}\pi r^2 h$$



$$V = \frac{1}{3}lwh$$

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What is the slope of the line given by the equation  $3x + 5y = -4$

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- B)  $\frac{5}{3}$
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One leg of a right triangle is 5 meters long and the other leg is 10 meters long. How many meters long is the hypotenuse?

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24

Given that  $4x + 1 = 5$ , what is the value of  $(x + 1)^2$ ?

- A) 1
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What vector is the result of adding the vectors  $\langle -1, 2 \rangle$ ,  $\langle -2, -3 \rangle$ , and  $\langle 4, -2 \rangle$ ?

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26

What value of  $x$  makes  $\frac{4}{5}x + 3 = 19$ ?

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Assume that  $x$ ,  $y$ , and  $z$  are real numbers. If  $x > z$  and  $(x+y) > (y+z)$ , then what is true of  $z$ ?

- A)  $z$  must have the same sign as  $y$
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What is the slope of the line given by the equation  $3x+5y=-4$

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- Decimal answers:** If you obtain a decimal answer with more digits than the grid can accommodate, it may be either rounded or truncated, but it must fill the entire grid.

Write answer in boxes. →

Answer:  $\frac{7}{12}$

← Fraction line

Grid in result.

7	/	1	2
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

Answer: 2.5

← Decimal point

	2	.	5
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

Acceptable ways to grid  $\frac{2}{3}$  are:

	2	/	3
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8

.	6	6	6
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8

.	6	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8

Answer: 201 – either position is correct

	2	0	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3

	2	0	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3

**NOTE:** You may start your answers in any column, space permitting. Columns you don't need to use should be left blank.



31

Christine sells real estate. She is paid 4% of the sale price of every house she sells. What is Christine paid for selling a house at the sale price of \$300,000?

32

For what value(s) of  $x$  is  $(x + 4)(x - 5) = 0$  true?

33

Which of the following inequalities orders the numbers 0.2, 0.01, and  $\frac{1}{7}$  from least to greatest?

34

Given that  $4x + 1 = 5$ , what is the value of  $(x + 1)^2$ ?

35

What vector is the result of adding the vectors  $\langle -1, 2 \rangle$ ,  $\langle -2, -3 \rangle$ , and  $\langle 4, -2 \rangle$ ?

36

What value of  $x$  makes  $\frac{4}{5}x + 3 = 19$ ?

37

In Mountainview, the daily low temperatures, in degrees Fahrenheit ( $^{\circ}$  F), during the first week of January were 3, -12, 15, 30, 9, -2, and 6. To the nearest degree Fahrenheit, what was the mean daily low temperature for the week?

38

Assume that  $x$ ,  $y$ , and  $z$  are real numbers. If  $x > z$  and  $(x + y) > (y + z)$ , then what is true of  $z$ ?

## Answer Key

Calculator Off	
1	D
2	A
3	C
4	C
5	D
6	D
7	B
8	D
9	C
10	A
11	D
12	A
13	C
14	C
15	D
<hr/>	
16	20
17	$9^\circ F$
18	$z$ can be any real number
19	$\frac{-3}{5}$
20	$5\sqrt{5}$

Calculator On	
1	D
2	A
3	C
4	C
5	D
6	D
7	B
8	D
9	C
10	A
11	D
12	A
13	C
14	C
15	D
16	D
17	B
18	D
19	C
20	A
21	D
22	A
23	C
24	C
25	D
26	D
27	B
28	D
29	C
30	A
31	\$12,000
32	-4 and 5
33	$0.01 < \frac{1}{7} < 0.2$
34	4
35	$< 1, -3 >$
36	20
37	$9^\circ F$
38	z can be any real number