

CHECK YOUR HOMEWORK ANSWERS

Wednesday, September 26, 2018 12:10 PM

Math Test No Calculator Answers

1 B	11 B
2 B	12 D
3 C	13 A
4 A	14 A
5 D	15 D
6 A	16 1, 2, 4, 8, 16
7 C	17 $15/4$, 3.75
8 B	18 30
9 C	19 $3/2$, 1.5
10 D	20 $1/6$, .166, .167

MATH TEST
NO CALCULATOR
RAW SCORE
(NUMBER OF
CORRECT ANSWERS)

Math Test Calculator Answers

1 A	11 B	21 D	31 10
2 C	12 D	22 B	32 31
3 A	13 A	23 C	33 97, 98, 99, 100, 101
4 D	14 B	24 D	34 5
5 B	15 D	25 B	35 1.25, $5/4$
6 C	16 B	26 C	36 2.6, $13/5$
7 D	17 B	27 A	37 30
8 D	18 C	28 A	38 8
9 B	19 C	29 B	
10 B	20 C	30 D	

MATH TEST
CALCULATOR
RAW SCORE
(NUMBER OF
CORRECT ANSWERS)

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RAW SCORE CONVERSION TABLE 1 SECTION AND TEST SCORES

Raw Score (# of correct answers)	Math Section Score	Reading Test Score	Writing and Language Test Score	Raw Score (# of correct answers)	Math Section Score	Reading Test Score	Writing and Language Test Score
0	200	10	10	30	530	26	30
1	200	10	10	31	540	27	30
2	210	10	10	32	550	27	31
3	230	10	11	33	560	28	31
4	250	11	11	34	570	28	32
5	260	12	12	35	580	29	33
6	280	13	13	36	590	29	34
7	290	14	14	37	590	30	34
8	310	15	15	38	600	30	35
9	320	15	16	39	610	31	36
10	330	16	16	40	620	31	36
11	340	17	17	41	630	32	38
12	350	17	18	42	640	33	39
13	360	18	18	43	650	33	39
14	380	18	19	44	660	34	40
15	390	19	20	45	670	35	
16	400	19	20	46	670	36	
17	410	20	21	47	680	37	
18	420	20	22	48	690	37	
19	430	21	23	49	700	38	
20	440	21	23	50	710	39	
21	450	22	24	51	720	40	
22	460	22	25	52	730	40	
23	470	23	25	53	740		
24	490	23	26	54	760		
25	500	24	27	55	770		
26	510	24	27	56	780		
27	510	25	28	57	790		
28	520	25	28	58	800		
29	530	26	29				

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7

A bricklayer uses the formula $n = 7 \ell h$ to estimate the number of bricks, n , needed to build a wall that is ℓ feet long and h feet high. Which of the following correctly expresses ℓ in terms of n and h ?

A) $\ell = \frac{7}{nh}$

B) $\ell = \frac{h}{7n}$

C) $\ell = \frac{n}{7h}$

D) $\ell = \frac{n}{7 + h}$

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8

x	$w(x)$	$t(x)$
1	-1	-3
2	3	-1
3	4	1
4	3	3
5	-1	5

The table above shows some values of the functions w and t . For which value of x is $w(x) + t(x) = x$?

- A) 1
- B) 2
- C) 3
- D) 4

9

If $\sqrt{x} + \sqrt{9} = \sqrt{64}$, what is the value of x ?

- A) $\sqrt{5}$
- B) 5
- C) 25
- D) 55

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12

Which of the following is equivalent to $\frac{4x^2 + 6x}{4x + 2}$?

A) x

B) $x + 4$

C) $x - \frac{2}{4x + 2}$

D) $x + 1 - \frac{2}{4x + 2}$

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15

Which of the following is equivalent to $\left(a + \frac{b}{2}\right)^2$?

A) $a^2 + \frac{b^2}{2}$

B) $a^2 + \frac{b^2}{4}$

C) $a^2 + \frac{ab}{2} + \frac{b^2}{2}$

D) $a^2 + ab + \frac{b^2}{4}$

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16

If $a^{\frac{b}{4}} = 16$ for positive integers a and b , what is one possible value of b ?

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15

x	1	2	3	4	5
y	$\frac{11}{4}$	$\frac{25}{4}$	$\frac{39}{4}$	$\frac{53}{4}$	$\frac{67}{4}$

Which of the following equations relates y to x for the values in the table above?

A) $y = \frac{1}{2} \cdot \left(\frac{5}{2}\right)^x$

B) $y = 2 \cdot \left(\frac{3}{4}\right)^x$

C) $y = \frac{3}{4}x + 2$

D) $y = \frac{7}{2}x - \frac{3}{4}$

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20

What is the sum of the solutions to

$$(x - 6)(x + 0.7) = 0 ?$$

A) -6.7

B) -5.3

C) 5.3

D) 6.7

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29

A motor powers a model car so that after starting from rest, the car travels s inches in t seconds, where $s = 16t\sqrt{t}$. Which of the following gives the average speed of the car, in inches per second, over the first t seconds after it starts?

A) $4\sqrt{t}$

B) $16\sqrt{t}$

C) $\frac{16}{\sqrt{t}}$

D) $16t$

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NO CALCULATOR

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3

$$\begin{aligned}x &= y - 3 \\ \frac{x}{2} + 2y &= 6\end{aligned}$$

Which ordered pair (x, y) satisfies the system of equations shown above?

- A) $(-3, 0)$
- B) $(0, 3)$
- C) $(6, -3)$
- D) $(36, -6)$

7

$$x^2 + 6x + 4$$

Which of the following is equivalent to the expression above?

- A) $(x + 3)^2 + 5$
- B) $(x + 3)^2 - 5$
- C) $(x - 3)^2 + 5$
- D) $(x - 3)^2 - 5$

13

Which of the following expressions is equivalent to

$$\frac{x^2 - 2x - 5}{x - 3} ?$$

- A) $x - 5 - \frac{20}{x - 3}$
- B) $x - 5 - \frac{10}{x - 3}$
- C) $x + 1 - \frac{8}{x - 3}$
- D) $x + 1 - \frac{2}{x - 3}$

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6

In the equation $(ax + 3)^2 = 36$, a is a constant. If $x = -3$ is one solution to the equation, what is a possible value of a ?

- A) -11
- B) -5
- C) -1
- D) 0

8

$$x + 1 = \frac{2}{x + 1}$$

In the equation above, which of the following is a possible value of $x + 1$?

- A) $1 - \sqrt{2}$
- B) $\sqrt{2}$
- C) 2
- D) 4

13

If $a^{-\frac{1}{2}} = x$, where $a > 0$, what is a in terms of x ?

- A) \sqrt{x}
- B) $-\sqrt{x}$
- C) $\frac{1}{x^2}$
- D) $-\frac{1}{x^2}$

14

Which of the following is a value of x for which the

expression $\frac{-3}{x^2 + 3x - 10}$ is undefined?

- A) -3
- B) -2
- C) 0
- D) 2

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Questions 19 and 20 refer to the following information.

Mosteller's formula: $A = \frac{\sqrt{hw}}{60}$

Current's formula: $A = \frac{4 + w}{30}$

The formulas above are used in medicine to estimate the body surface area A , in square meters, of infants and children whose weight w ranges between 3 and 30 kilograms and whose height h is measured in centimeters.

19

Based on Current's formula, what is w in terms of A ?

- A) $w = 30A - 4$
- B) $w = 30A + 4$
- C) $w = 30(A - 4)$
- D) $w = 30(A + 4)$

20

If Mosteller's and Current's formulas give the same estimate for A , which of the following expressions is equivalent to \sqrt{hw} ?

- A) $\frac{4 + w}{2}$
 - B) $\frac{4 + w}{1,800}$
 - C) $2(4 + w)$
 - D) $\frac{(4 + w)^2}{2}$
-

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23

$$M = 1,800(1.02)^t$$

The equation above models the number of members, M , of a gym t years after the gym opens. Of the following, which equation models the number of members of the gym q quarter years after the gym opens?

- A) $M = 1,800(1.02)^{\frac{q}{4}}$
- B) $M = 1,800(1.02)^{4q}$
- C) $M = 1,800(1.005)^{4q}$
- D) $M = 1,800(1.082)^q$

29

A photocopy machine is initially loaded with 5,000 sheets of paper. The machine starts a large job and copies at a constant rate. After 20 minutes, it has used 30% of the paper. Which of the following equations models the number of sheets of paper, p , remaining in the machine m minutes after the machine started printing?

- A) $p = 5,000 - 20m$
- B) $p = 5,000 - 75m$
- C) $p = 5,000(0.3)^{\frac{m}{20}}$
- D) $p = 5,000(0.7)^{\frac{m}{20}}$

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3

The formula below is often used by project managers to compute E , the estimated time to complete a job, where O is the shortest completion time, P is the longest completion time, and M is the most likely completion time.

$$E = \frac{O + 4M + P}{6}$$

Which of the following correctly gives P in terms of E , O , and M ?

- A) $P = 6E - O - 4M$
- B) $P = -6E + O + 4M$
- C) $P = \frac{O + 4M + E}{6}$
- D) $P = \frac{O + 4M - E}{6}$

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5

The width of a rectangular dance floor is w feet. The length of the floor is 6 feet longer than its width. Which of the following expresses the perimeter, in feet, of the dance floor in terms of w ?

- A) $2w + 6$
- B) $4w + 12$
- C) $w^2 + 6$
- D) $w^2 + 6w$

7

$$\sqrt{2x + 6} + 4 = x + 3$$

What is the solution set of the equation above?

- A) $\{-1\}$
- B) $\{5\}$
- C) $\{-1, 5\}$
- D) $\{0, -1, 5\}$

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8

$$f(x) = x^3 - 9x$$

$$g(x) = x^2 - 2x - 3$$

Which of the following expressions is equivalent to

$$\frac{f(x)}{g(x)}, \text{ for } x > 3 ?$$

- A) $\frac{1}{x+1}$
- B) $\frac{x+3}{x+1}$
- C) $\frac{x(x-3)}{x+1}$
- D) $\frac{x(x+3)}{x+1}$

10

A group of 202 people went on an overnight camping trip, taking 60 tents with them. Some of the tents held 2 people each, and the rest held 4 people each. Assuming all the tents were filled to capacity and every person got to sleep in a tent, exactly how many of the tents were 2-person tents?

- A) 30
- B) 20
- C) 19
- D) 18

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12

If $\frac{2a}{b} = \frac{1}{2}$, what is the value of $\frac{b}{a}$?

- A) $\frac{1}{8}$
- B) $\frac{1}{4}$
- C) 2
- D) 4

15

$$g(x) = 2x - 1$$

$$h(x) = 1 - g(x)$$

The functions g and h are defined above. What is the value of $h(0)$?

- A) -2
- B) 0
- C) 1
- D) 2

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4

$$x(x + 2) = 8$$

Which of the following lists all solutions to the quadratic equation above?

- A) 8 and 6
- B) 4 and -2
- C) -4 and 2
- D) $\sqrt{6}$

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10

$$\frac{5}{x-1} + \frac{8}{2(x-1)}$$

Which of the following expressions is equivalent to the one above, where $x \neq 1$?

- A) $\frac{9}{x-1}$
- B) $\frac{14}{x-1}$
- C) $\frac{15}{2x-2}$
- D) $\frac{21}{2x-2}$

CALCULATOR ALLOWED

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3

$$x - 2 = \sqrt{x + 10}$$

Which of the following values of x is a solution to the equation above?

- A) -1
- B) 1
- C) 4
- D) 6

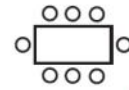
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20

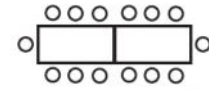
If $2\sqrt{2x} = a$, what is $2x$ in terms of a ?

- A) $\frac{a}{2}$
- B) $\frac{a^2}{4}$
- C) $\frac{a^2}{2}$
- D) $4a^2$

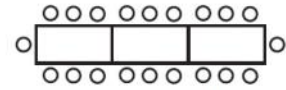
21



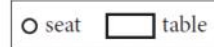
Arrangement I



Arrangement II



Arrangement III



A project coordinator at a banquet hall is given the task of arranging seating for an awards ceremony. The figure above shows the first three possible arrangements of tables and the maximum number of seats in each arrangement. If the number of seats in each successive arrangement is increased by 6 over the preceding arrangement, which of the following represents the maximum number of seats around n tables?

- A) $6n$
- B) $2(3n + 1)$
- C) $6(n + 1)$
- D) $6(n + 3)$

34

If $x \neq -1$, what is the value of $\left(\frac{1}{x+1}\right)(2 + 2x)$?