Math League Adaptive Learning System

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2020-21 Annual Algebra Course 1 Contest

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Answer: A

Grade: Algebra Course 1   Level of Difficulty: 1   School Year: 2020-2021

1. (Question: 12965) If $x = -2021$, which of the following is greatest?

A) $-2021x$

B) $-2020x$

C) $2020x$

D) $2021x$

Answer >>   View similar question(s)

Answer: C

Grade: Algebra Course 1   Level of Difficulty: 1   School Year: 2020-2021

2. (Question: 12966) The letters in the 9-letter code *MATHISFUN* represent the 9 digits 1, 2, . . . , 9 in that order. What is the 4-digit number represented by the code *TINA*?

A) 3492

B) 3582

C) 3592

D) 3594

Answer >>   View similar question(s)

Answer: D

Grade: Algebra Course 1   Level of Difficulty: 1   School Year: 2020-2021

3. (Question: 12967) If $2x + 5 = 13$, what is the value of $8x + 20$?

A) 26

B) 29

C) 39

D) 52

Answer >>   View similar question(s)

Answer: C

Grade: Algebra Course 1   **Level of Difficulty:** 1   **School Year:** 2020-2021

4. (Question: 12968) If $8a = 12b$ and $ab \neq 0$, what is the value of $\dfrac{a}{b}$?

A) $\dfrac{1}{2}$

B) $\dfrac{2}{3}$

C) $\dfrac{3}{2}$

D) 2

Answer >>   View similar question(s)

Answer: B

Grade: Algebra Course 1   **Level of Difficulty:** 1   **School Year:** 2020-2021

5. (Question: 12969) $2a - 3b + 4 - 9a + 13b - 15 =$

A) $-7a - 10b - 11$

B) $-7a + 10b - 11$

C) $7a + 10b - 11$

D) $-7a + 10b + 11$

Answer >>   View similar question(s)

Answer: D

Grade: Algebra Course 1   **Level of Difficulty:** 1   **School Year:** 2020-2021

6. (Question: 12970) $(a + 2)(3a - 4) =$

A) $a^2 - 2a - 8$

B) $3a^2 - 2a - 8$

C) $3a^2 - 2a + 8$

D) $3a^2 + 2a - 8$

Answer >>   View similar question(s)

Answer: D

Grade: Algebra Course 1   **Level of Difficulty:** 1   **School Year:** 2020-2021

7. (Question: 12971) $x^2 - (x + 4)(x - 4) =$

A) -16

B) -8

C) 8

D) 16

Answer >>   View similar question(s)

Answer: B

Grade: Algebra Course 1   Level of Difficulty: 1   School Year: 2020-2021

8. (Question: 12972) For all integers x, $125x^6$ is **always** the ___?___ power of an integer.

A) 2nd

B) 3rd

C) 5th

D) 6th

Answer >>   View similar question(s)

Answer: A

Grade: Algebra Course 1   Level of Difficulty: 2   School Year: 2020-2021

9. (Question: 12973) The sum of the ages of my 3 children is 45 years. If their ages are consecutive odd integers, how many years old is my oldest child?

A) 17

B) 19

C) 21

D) 23

Answer >>   View similar question(s)

Answer: B

Grade: Algebra Course 1   Level of Difficulty: 2   School Year: 2020-2021

10. (Question: 12974) If $a - b = 10$ and $ab = 50$, then $\dfrac{1}{a} - \dfrac{1}{b} =$

A) -5

B) $-\dfrac{1}{5}$

C) $\dfrac{1}{5}$

D) 5

Answer >>   View similar question(s)

Answer: C

Grade: Algebra Course 1   Level of Difficulty: 2   School Year: 2020-2021

11. (Question: 12975) If *a* and *b* are positive numbers, then $\sqrt{2.56a^6b^{10}} =$

A) $1.28a^3b^5$

B) $1.28a^6b^{10}$

C) $1.6a^3b^5$

D) $1.6a^6b^{10}$

Answer >>   View similar question(s)

Answer: C

Grade: Algebra Course 1   Level of Difficulty: 2   School Year: 2020-2021

12. (Question: 12976) If today is Tuesday, $14n + 3$ days from now (where *n* is a positive integer) will be a

A) Wednesday

B) Thursday

C) Friday

D) Saturday

Answer >>   View similar question(s)

Answer: C

Grade: Algebra Course 1   Level of Difficulty: 2   School Year: 2020-2021

13. (Question: 12977) In my school, 4% of the students are vegan. If 120 students are not vegan, how many students are in my school?

A) 123

B) 124

C) 125

D) 126

Answer >>   View similar question(s)

Answer: A

Grade: Algebra Course 1   Level of Difficulty: 2   School Year: 2020-2021

14. (Question: 12978) If $5 < m < 10$, what is the median of the following numbers: $m + 5$, $m + 10$, $m + 14$, $m + 20$, $m + 22$, and $2m$?

A) $m + 12$

B) $m + 17$

C) $m + 21$

D) $\dfrac{(3m+14)}{2}$

Answer >>   View similar question(s)

Answer: A

Grade: Algebra Course 1   Level of Difficulty: 2   School Year: 2020-2021

15. (Question: 12979) The total number of points of intersection of the graphs of $4x + 10y = 12$ and $6x + 15y = 20$ is

A) 0

B) 1

C) 2

D) 3

Answer >>   View similar question(s)

Answer: A

Grade: Algebra Course 1   Level of Difficulty: 2   School Year: 2020-2021

16. (Question: 12980) A large bundle of stamps has twice as many stamps as a small bundle. Jack has 5 large bundles of stamps and 7 individual stamps, while Jill has 11 small bundles of stamps and 2 individual stamps. Jack has the same number of stamps as Jill. How many stamps does each have?

A) 57

B) 67

C) 68

D) 78

Answer >>   View similar question(s)

Answer: B

Grade: Algebra Course 1   Level of Difficulty: 3   School Year: 2020-2021

17. (Question: 12981) What is the remainder when $x^4 + x^3 + x^2 + x + 1$ is divided by $x - 1$?

A) 1

B) 5

C) x

D) $5x$

Answer >>   View similar question(s)

Answer: D

Grade: Algebra Course 1   Level of Difficulty: 3   School Year: 2020-2021

18. (Question: 12982) If $x \bigstar y = xy(x - 3y)$, what is the value of $(2 \bigstar 1) \bigstar (4 \bigstar 1)$?

A) -112

B) -54

C) 54

D) 112

Answer >>   View similar question(s)

Answer: A

Grade: Algebra Course 1   Level of Difficulty: 3   School Year: 2020-2021

19. (Question: 12983) How many different real numbers x satisfy $|3x + 5| = 2x$?

A) 0

B) 1

C) 2

D) 3

Answer >>   View similar question(s)

Answer: C

Grade: Algebra Course 1   Level of Difficulty: 3   School Year: 2020-2021

20. (Question: 12984) What is the positive value of x that satisfies $x^{400} = 9^{1000}$?

A) 27

B) 81

C) 243

D) 729

Answer >>   View similar question(s)

Answer: B

Grade: Algebra Course 1   Level of Difficulty: 3   School Year: 2020-2021

21. (Question: 12985) The number of hot dogs I ate at the picnic is the same as the number of real numbers that satisfy $(x^2 – 12)^2 = 169$. How many hot dogs did I eat?

A) 1

B) 2

C) 3

D) 4

Answer >>   View similar question(s)

Answer: B

Grade: Algebra Course 1   Level of Difficulty: 3   School Year: 2020-2021

22. (Question: 12986) If $t \neq -4$ and $t \neq -5$, then $\dfrac{\left(t^2 – 16\right)\left(t^2 – 25\right)}{(t+4)(t+5)} =$

A) $(t + 4)(t + 5)$

B) $(t – 4)(t – 5)$

C) $(t + 16)(t + 25)$

D) $(t – 16)(t – 25)$

Answer >>   View similar question(s)

Answer: D

Grade: Algebra Course 1   Level of Difficulty: 3   School Year: 2020-2021

23. (Question: 12987) For how many different values of x is $\dfrac{12}{x}$ an integer?

A) 5

B) 6

C) 12

D) more than 12

Answer >>   View similar question(s)

Answer: C

Grade: Algebra Course 1   Level of Difficulty: 4   School Year: 2020-2021

24. (Question: 12988) What is the value of b for which $x^2 - 8x + b = 0$ has only one solution?

A) 64

B) 32

C) 16

D) 8

Answer >>   View similar question(s)

Answer: B

Grade: Algebra Course 1   Level of Difficulty: 4   School Year: 2020-2021

25. (Question: 12989) Working together, 5 printers can print 640 pages in 4 minutes. Working at this same rate, how many minutes would it take 8 printers to print 2560 pages?

A) 8

B) 10

C) 12

D) 16

Answer >>   View similar question(s)

Answer: A

Grade: Algebra Course 1   Level of Difficulty: 4   School Year: 2020-2021

26. (Question: 12990) If n is a positive integer, $n(n + 1)(n + 2)(n + 3)$ must be divisible by which of the following numbers?

A) 8

B) 9

C) 10

D) 14

Answer >>   View similar question(s)

Answer: B

Grade: Algebra Course 1   Level of Difficulty: 4   School Year: 2020-2021

27. (Question: 12991) I can buy b bags of chips from a vending machine for m dimes. If I have d dollars, at most how many bags of chips can I buy?

A) $\dfrac{10dm}{b}$

B) $\dfrac{10bd}{m}$

C) $\dfrac{10m}{bd}$

D) $\dfrac{bd}{10m}$

Answer >>   View similar question(s)

Answer: A

Grade: Algebra Course 1   Level of Difficulty: 4   School Year: 2020-2021

28. (Question: 12992) On Monday a jacket was marked down by 65% from its original price. On Tuesday the jacket was marked down by 65% from Monday's discounted price, an additional $91 decrease. What was the jacket's original price before both discounts?

A) $400

B) $450

C) $500

D) $550

Answer >>   View similar question(s)

Answer: D

Grade: Algebra Course 1   Level of Difficulty: 4   School Year: 2020-2021

29. (Question: 12993) If $3^x = 2$ and $27^{2x+1} = 32a$, then $a =$

A) 18

B) 27

C) 36

D) 54

Answer >>   View similar question(s)

Answer: A

Grade: Algebra Course 1   Level of Difficulty: 4   School Year: 2020-2021

30. (Question: 12994) If the average of x and y is 15, the average of y and z is 24, and the average of x and z is 27, what is the average of x, y, and z?

A) 22

B) 28

C) 36

D) 44

Answer >>   View similar question(s)