PURDUE
UNIVERSITY

Indiana Academic M.A.T.H. Bowl

Area 2021

1

2

Begin
Practice
Round

3

4

2021 M.A.T.H. Bowl Area Practice Round 30 seconds

20 - 20 = ?

A. 20

B. 22

C. 0

D. 40

5

2021 M.A.T.H. Bowl Area Practice Round

20 - 20 = ?

C. 0

8

End
Practice
Round

9

Begin
Round
One

10

2021 M.A.T.H. Bowl Area Round 1 Number 1 30 seconds

Simplify 30 + 5 ÷ 5 × 81 =

A. 567
B. 2,430
C. 111
D. 101

11

2021 M.A.T.H. Bowl Area Round 1 Number 1

Simplify 30 + 5 ÷ 5 × 81 =

C. 111

Order of operations tells us to multiply and divide left to right first.
30 + (5 ÷ 5) x 81
30 + 1 x 81
30 + 81
111

14

2021 M.A.T.H. Bowl Area Round 1 Number 2 60 seconds

How many seconds are in 2.75 hours?

A. 3,333 seconds
B. 4,443 seconds
C. 5,594 seconds
D. 9,900 seconds

15

2021 M.A.T.H. Bowl Area Round 1 Number 2

How many seconds are in 2.75 hours?

D. 9,900 seconds

2.75 hours x 60 minutes per hour = 165 minutes
165 minutes x 60 seconds per minute = 9,900 seconds

18

2021 M.A.T.H. Bowl Area Round 1 Number 3 60 seconds

Victoria is trying to save her money. She starts with $50. Then she puts in an equal amount once a month. Two months later, she has $90. If the process continues, how much will she have in one year?

A. $275
B. $290
C. $300
D. $320

19

2021 M.A.T.H. Bowl Area Round 1 Number 3

Victoria is trying to save her money. She starts with $50. Then she puts in an equal amount once a month. Two months later, she has $90. If the process continues, how much will she have in one year?

B. $290

$90 - $50 = $40 saved in two months
$40 ÷ 2 = $20 per month in savings
$20 per month for 12 months = $240 in savings in a year
$50 + $240 = $290 total for the year

22

2021 M.A.T.H. Bowl Area Round 1 Number 4 30 seconds

Emma is making a trail mix that calls for the extended ratio (using cups) of peanuts to raisins to pretzels that is 2:4:3, in that order. This recipe makes 18 servings. How many cups of raisins are needed for Emma to make enough for 27 servings?

A. 6 cups
B. 5 cups
C. 8 cups
D. 4 ½ cups

23

2021 M.A.T.H. Bowl Area Round 1 Number 4

Emma is making a trail mix that calls for the extended ratio (using cups) of peanuts to raisins to pretzels that is 2:4:3, in that order. This recipe makes 18 servings. How many cups of raisins are needed for Emma to make enough for 27 servings?

A. 6 cups

We can use a proportion or simple reasoning.

4 cups of raisins in 18 servings.
2 cups of raisins in 9 servings.

6 cups of raisins in 27 servings.

26

2021 M.A.T.H. Bowl Area Round 1 Number 5 30 seconds

The ratio of boys to girls on a soccer team is 3:4. If there are 49 players on a team, how many are girls?

A. 24
B. 18
C. 28
D. 16

28

2021 M.A.T.H. Bowl Area Round 1 Number 5

The ratio of boys to girls on a soccer team is 3:4. If there are 49 players on a team, how many are girls?

C. 28

Girls	Boys	Ratio of boys:girls	Is it 3:4?
24	49 – 24 = 25	25:24	no
18	49 – 18 = 31	31:18	no
28	49 – 28 = 21	21:28	yes
16	49 – 16 = 33	33:16	no

We could also use a proportion. Look at the number of girls listed. Only one gives more girls than boys.

31

2021 M.A.T.H. Bowl Area Round 1 Number 6 60 seconds

Four basketball teams, the Stars, Jackets, Farmers, and Bearcats have one game against each other. Each team plays against every other team in one game only. How many games are played?

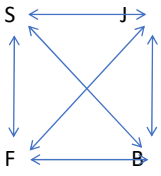
A. 4 games
B. 6 games
C. 8 games
D. 10 games

32

2021 M.A.T.H. Bowl Area Round 1 Number 6

Four basketball teams, the Stars, Jackets, Farmers, and Bearcats have one game against each other. Each team plays against every other team in one game only. How many games are played?

B. 6 games



Stars vs Jackets
Stars vs Farmers
Stars vs Bearcats
Jackets vs Farmers
Jackets vs Bearcats
Farmers vs Bearcats

35

2021 M.A.T.H. Bowl Area Round 1 Number 7 60 seconds

A pile of 68 coins consists of quarters and dimes. If the value of the pile is $15.05, how many dimes are there?

A. 13 dimes
B. 55 dimes
C. 11 dimes
D. 12 dimes

36

2021 M.A.T.H. Bowl Area Round 1 Number 7

A pile of 68 coins consists of quarters and dimes. If the value of the pile is $15.05, how many dimes are there?

A. 13 dimes

Let x = number of dimes
68 – x = number of quarters

10x + 25(68-x) = 1505
10x + 1700 – 25x = 1505
-15x + 1700 = 1505
195 = 15x
x = 13

39

2021 M.A.T.H. Bowl Area Round 1 Number 8 60 seconds

A group of ducks and cows are in a field. There are a total of 72 heads and 196 legs. How many ducks are in the field?

A. 32 ducks
B. 26 ducks
C. 56 ducks
D. 46 ducks

40

2021 M.A.T.H. Bowl Area Round 1 Number 8

A group of ducks and cows are in a field. There are a total of 72 heads and 196 legs. How many ducks are in the field?

D. 46 ducks

By checking each answer:

A. 32 ducks, 20 cows → 32(2) + 20(4) = 144 legs
B. 26 ducks, 46 cows → 26(2) + 46(4) = 236 legs
C. 56 ducks, 16 cows → 56(2) + 16(4) = 176 legs
D. 46 ducks, 26 cows → 46(2) + 26(4) = 196 legs

By solving algebraic equations

Let d = number of ducks
Let c = number of cows

d + c = 72 heads → c = 72 - d
2d + 4c = 196 legs

2d + 4(72 – d) = 196
2d + 288 – 4d = 196
288 – 2d = 196
92 = 2d
d = 46

43

End
Round
One

44

Begin
Round
Two

45

2021 M.A.T.H. Bowl Area Round 2 Number 1 30 seconds

Which of the following is the same as 21%?

A. 0.021
B. 1/5
C. 3/7
D. 0.21

46

2021 M.A.T.H. Bowl Area Round 2 Number 1

Which of the following is the same as 21%?

D. 0.21

Percent (%) means divide by 100.
21 percent is 21 hundredths or 0.21.

49

2021 M.A.T.H. Bowl Area Round 2 Number 2 45 seconds

Clayton attends basketball practice for 1 hour each weekend and then 2 hours during the week. How many minutes will he practice in 4 weeks?

A. 240 minutes
B. 480 minutes
C. 720 minutes
D. 1,540 minutes

50

2021 M.A.T.H. Bowl Area Round 2 Number 2

Clayton attends basketball practice for 1 hour each weekend and then 2 hours during the week. How many minutes will he practice in 4 weeks?

C. 720 minutes

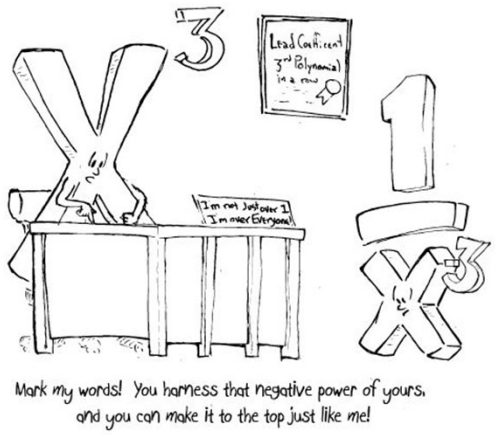
1 + 2 = 3 hours of practice per week
3 x 4 = 12 hours in 4 weeks
12 x 60 = 720 minutes in 4 weeks

53

2021 M.A.T.H. Bowl Area Round 2 Number 3 30 seconds

Simplify $6^3 / (2)^2(6)$

A. 0
B. 1
C. 6
D. 9



54

2021 M.A.T.H. Bowl Area Round 2 Number 3

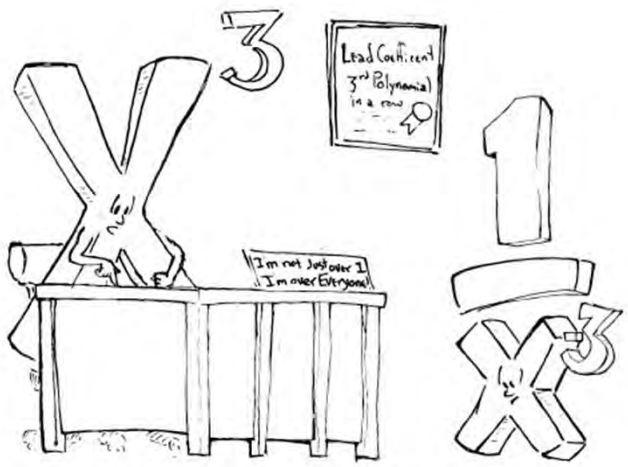
Simplify $6^3 / (2)^2(6)$

D. 9

$\frac{6(6)(6)}{2(2)(6)}$

$\frac{36}{4}$

9



57

2021 M.A.T.H. Bowl Area Round 2 Number 4 45 seconds

What is the sixth whole number factor of 144, counting from least to greatest?

A. 2
B. 4
C. 6
D. 8

58

2021 M.A.T.H. Bowl Area Round 2 Number 4

What is the sixth whole number factor of 144, counting from least to greatest?

D. 8

The factors of 144 listed in order from least to greatest:

1, 2, 3, 4, 6, **8,** 9, 12, 16, 18, 24, 36, 48, 62, 144

61

2021 M.A.T.H. Bowl Area Round 2 Number 5 60 seconds

A rectangular flag has a perimeter of 60 cm and length of 20 cm. What is the area of this rectangular flag?

A. 200 sq cm
B. 20 sq cm
C. 100 sq cm
D. 10 sq cm

63

2021 M.A.T.H. Bowl Area Round 2 Number 5

A rectangular flag has a perimeter of 60 cm and length of 20 cm. What is the area of this rectangular flag?

A. 200 sq cm

P = 2L + 2W
60 = 2(20) + 2W
60 = 40 + 2W
20 = 2W
10 = W

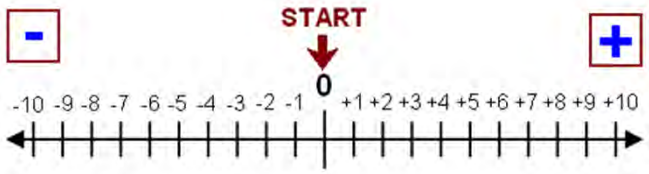
A = LW
A = 20(10)
A = 200

66

2021 M.A.T.H. Bowl Area Round 2 Number 6 30 seconds

What is the value of
4 + -6 + 4 - -6 + 4 + (-4 + 5) - -2?

A. 0
B. 31
C. -2
D. 15

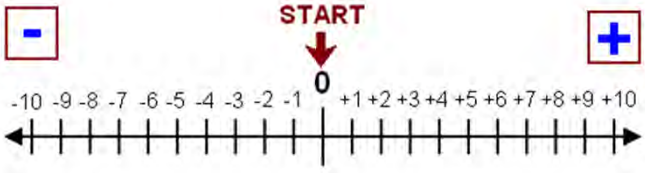


67

2021 M.A.T.H. Bowl Area Round 2 Number 6

What is the value of
4 + -6 + 4 - -6 + 4 + (-4 + 5) - -2?

D. 15



4 + -6 + 4 - -6 + 4 + (-4 + 5) - -2
4 + -6 + 4 - -6 + 4 + (1) - -2
-2 + 4 - -6 + 4 + (1) - -2
2 - -6 + 4 + (1) - -2
2 + 6 + 4 + (1) - -2
8 + 4 + (1) - -2
12 + (1) - -2
13 - -2
13 + 2
15

70

2021 M.A.T.H. Bowl Area Round 2 Number 7 60 seconds

A broken clock loses 4 minutes every hour. If the broken clock and a normal clock are both set at noon, what time will the normal clock say when the broken clock reads 2:20 PM?

A. 2:26 PM
B. 2:30 PM
C. 2:32 PM
D. 2:34 PM

71

2021 M.A.T.H. Bowl Area Round 2 Number 7

A broken clock loses 4 minutes every hour. If the broken clock and a normal clock are both set at noon, what time will the normal clock say when the broken clock reads 2:20 PM?

B. 2:30 PM

Using a proportion, broken : normal, gives 56:60 minutes each hour.

2:20 is 140 minutes later on the broken clock.
Let x = number of minutes later on the normal clock.

$\frac{56}{60} = \frac{140}{x}$

$56x = 60(140)$
$56x = 8400$
$x = 150$ or 150 minutes after noon, which is 2:30 PM

Another solution: the broken clock advances 14 minutes each time the normal advances 15 minutes. At 2:20, it has advanced 10 times. So 10(15 minutes) = 150 minutes later on the normal clock or 2:30.

74

2021 M.A.T.H. Bowl Area Round 2 Number 8 60 seconds

The number 24 written in Base 5 is 44_5 because there are 4 fives and 4 ones. The number 47 written in Base 5 is 142_5 because there is 1 twenty-five, 4 fives and 2 ones. How would you write the number 36 in Base 5?

A. 71_5
B. 120_5
C. 121_5
D. 403_5

75

2021 M.A.T.H. Bowl Area Round 2 Number 8

The number 24 written in Base 5 is 44_5 because there are 4 fives and 4 ones. The number 47 written in Base 5 is 142_5 because there is 1 twenty-five, 4 fives and 2 ones. How would you write the number 36 in Base 5?

In Base 5, the place values are 5^2, 5^1, 5^0 or the number of 25s, 5s, and ones. Only the digits 0, 1, 2, 3, and 4 are used.

$36 = 25 + 2(5) + 1$.

C. 121_5

78

End
Round
Two

79

Begin
Round
Three

80

2021 M.A.T.H. Bowl Area Round 3 Number 1 30 seconds

Kylie is planting vegetables in her garden. The first row is corn, the second row is beans, and the third row is cucumbers. If she repeats the same pattern, what vegetable is in the tenth row?

A. Corn
B. Beans
C. Cucumbers
D. Beets

81

2021 M.A.T.H. Bowl Area Round 3 Number 1

Kylie is planting vegetables in her garden. The first row is corn, the second row is beans, and the third row is cucumbers. If she repeats the same pattern, what vegetable is in the tenth row?

A. Corn

1 Corn
2 Beans
3 Cucumbers
4 Corn
5 Beans
6 Cucumbers
7 Corn
8 Beans
9 Cucumbers
10 Corn

84

2021 M.A.T.H. Bowl Area Round 3 Number 2 30 seconds

What is 20% of 2?

A. 4
B. 40
C. 0.4
D. 0.04

85

2021 M.A.T.H. Bowl Area Round 3 Number 2

What is 20% of 2?

C. 0.4

20% of 2
0.20(2)
0.40 or 0.4

88

2021 M.A.T.H. Bowl Area Round 3 Number 3 30 seconds

Solve for A:
(10/2) + (A + 3) = 40

A. A ?#7#
B. A ?#:#
C. A ?#54#
D. A ?#57#

89

2021 M.A.T.H. Bowl Area Round 3 Number 3

Solve for A:
(10/2) + (A + 3) = 40

C. A ?#54#

(10/2) + (A + 3) = 40
5 + A + 3 = 40
A + 8 = 40
A + 8 – 8 = 40 – 8
A = 32

92

2021 M.A.T.H. Bowl Area Round 3 Number 4 60 seconds

According to the census, the population of a country increased by an average of 2% per year. If the population of this country was 2,000,000 on December 31, 2018, what would the population of this country have been on January 1, 2017?

A. 2,040,000
B. 1,960,784
C. 1,666,667
D. 1,999,998

93

2021 M.A.T.H. Bowl Area Round 3 Number 4

According to the census, the population of a country increased by an average of 2% per year. If the population of this country was 2,000,000 on December 31, 2018, what would the population of this country have been on December 31, 2017?

B. 1,960,784

Let x = 2017 population
0.02x + x = 2018 population

0.02x + x = 2,000,200
1.02x = 2.000,000
x = 2.000,000/1.02
x = 1,960,784

96

2021 M.A.T.H. Bowl Area Round 3 Number 5 45 seconds

The price of a book after a 15% discount is $34. What was the original price of the book?

A. $40
B. $42
C. $38
D. $36

98

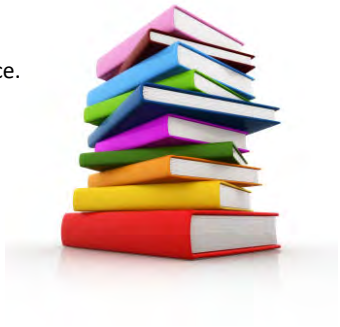
2021 M.A.T.H. Bowl Area Round 3 Number 5

The price of a book after a 15% discount is $34. What was the original price of the book?

A. $40

Let x = original price of book
If we get a 15% discount, we pay 85% of the original price.

85% of x = 34.
0.85x = 34
x = 34/0.85
x = 40



101

2021 M.A.T.H. Bowl Area Round 3 Number 6 60 seconds

A carpenter cut a 24 foot board into three pieces. The longest piece is 5 feet longer than the shortest piece. If the remaining piece is 4 feet shorter than the longest piece, how long is the remaining board?

A. 7 feet
B. 2 yards
C. 8 feet
D. 5 feet

102

2021 M.A.T.H. Bowl Area Round 3 Number 6

A carpenter cut a 24 foot board into three pieces. The longest piece is 5 feet longer than the shortest piece. If the remaining piece is 4 feet shorter than the longest piece, how long is the remaining board?

A. 7 feet

Let x = longest length
x – 5 = shortest length
x – 4 = middle length

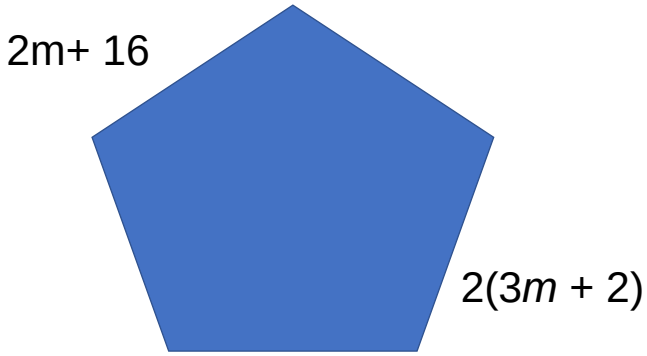
x + (x – 5) + (x – 4) = 24
3x – 9 = 24
3x – 9 + 9 = 24 + 9
3x = 33
3x/3 = 33/3
x = 11
x - 4 = 7 feet

105

2021 M.A.T.H. Bowl Area Round 3 Number 7 60 seconds

The polygon pictured is a regular pentagon where all the sides are the same length. What is the perimeter?

A. 3 units
B. 22 units
C. 132 units
D. 110 units

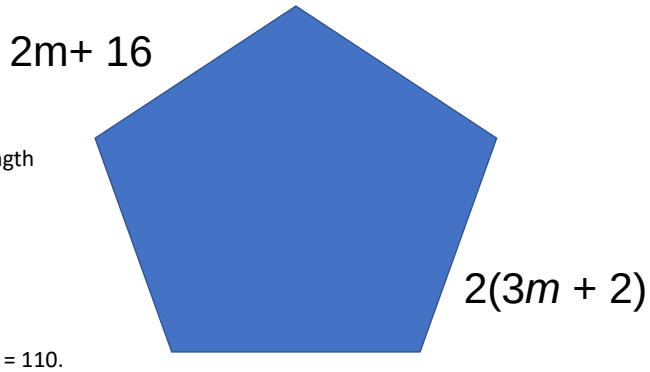


106

2021 M.A.T.H. Bowl Area Round 3 Number 7

The polygon pictured is a regular pentagon where all the sides are the same length. What is the perimeter?

D. 110 units

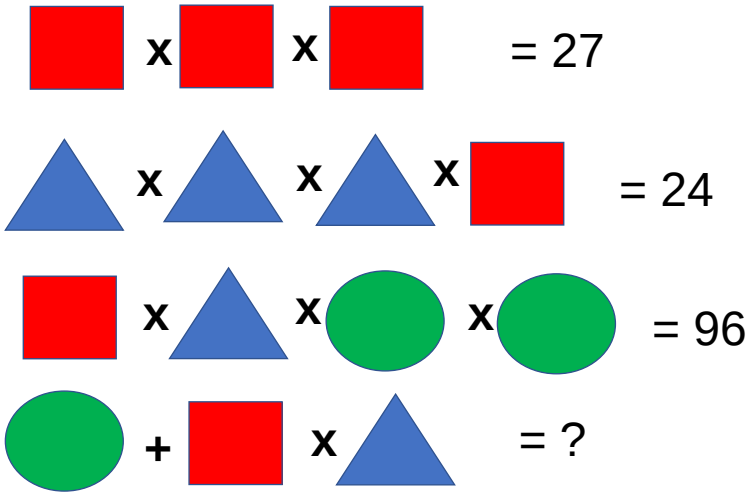


2m + 16 = 2(3m + 2) because sides are all same length
2m + 16 = 6m + 4
16 = 4m + 4
12 = 4m
m = 3

2m + 16 then equals 2(3) + 16 or 22.
The perimeter is the total distance around or 5(22) = 110.

109

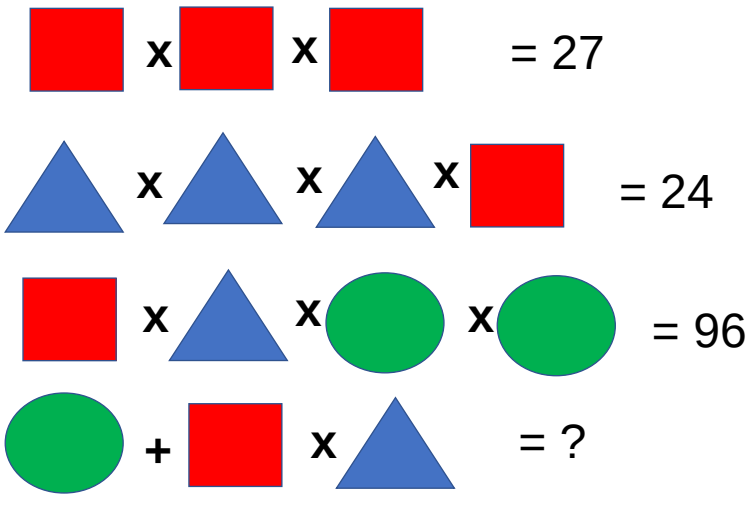
2021 M.A.T.H. Bowl Area Round 3 Number 8 60 seconds



A. 14
B. 24
C. 12
D. 10

110

2021 M.A.T.H. Bowl Area Round 3 Number 8



D. 10

Square = 3
Triangle = 2
Circle = 4

4 + 3 x 2 = 4 + 6

113

End
Round
Three

114

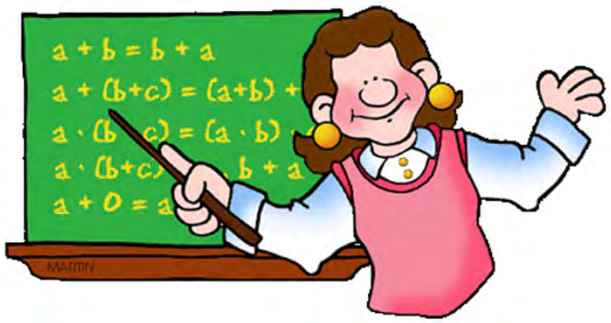
Begin
Round
Four

115

2021 M.A.T.H. Bowl Area Round 4 Number 1 30 seconds

Solve x + 9 = 45

A. x = 54
B. x = 5
C. x = 36
D. x = 405



116

2021 M.A.T.H. Bowl Area Round 4 Number 1

Solve x + 9 = 45

C. x = 36

X + 9 = 45
X + 9 – 9 = 45 – 9
X = 36

119

2021 M.A.T.H. Bowl Area Round 4 Number 2 30 seconds

In the number 2021, the sum of the digits is five. This information tells us:

A. 2021 is not divisible by 5
B. 2021 is not divisible by 2
C. 2021 is a composite number
D. 2021 is not divisible by 3 or 9

120

2021 M.A.T.H. Bowl Area Round 4 Number 2

In the number 2021, the sum of the digits is five. This information tells us:

D. 2021 is not divisible by 3 or 9

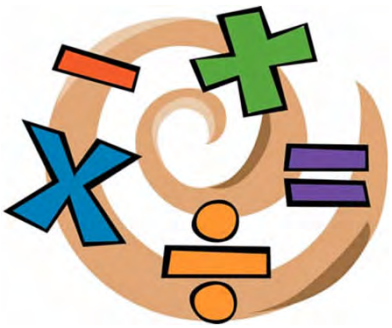
All statements A-D are all true but only D uses the information in the question about the sum of the digits.
Only the last digit is needed to test for divisibility by 2 and 5.
The factors of 2021 are 1, 43, 47, and 2021.
If the sum of the digits is divisible by 3 then so is the number.
Similarly, if the sum of the digits is divisible by 9, so is the number.

123

2021 M.A.T.H. Bowl Area Round 4 Number 3 45 seconds

Find the least common multiple of 5, 8, and 10.

A. 1
B. 5
C. 40
D. 80

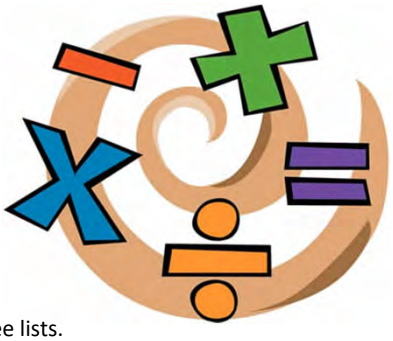


124

2021 M.A.T.H. Bowl Area Round 4 Number 3

Find the least common multiple of 5, 8, and 10.

C. 40



First we list the multiples of each number
5, 10, 15, 20, 25, 30, 35, **40**, 45, 50, …
8, 16, 24, 32, **40,** 48, 56, 64, 71, 80, …
10, 20, 30, **40,** 50, 60, 70, 80, …

Then we look for the smallest multiple in all three lists.

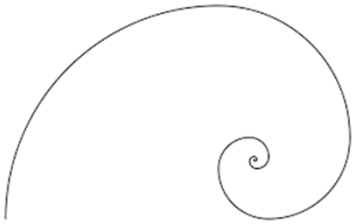
127

2021 M.A.T.H. Bowl Area Round 4 Number 4 45 seconds

What are the next three numbers in this sequence?

2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233…

A. 368, 491, 903
B. 377, 600, 977
C. 366, 499, 610
D. 377, 610, 987



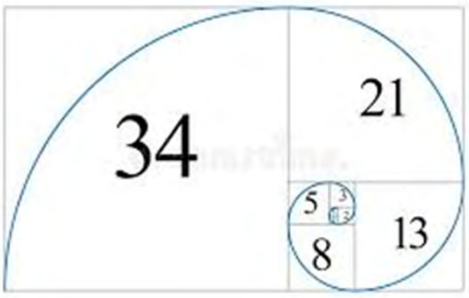
128

2021 M.A.T.H. Bowl Area Round 4 Number 4

What are the next three numbers in this sequence?

2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233…

D. 377, 610, 987



131

2021 M.A.T.H. Bowl Area Round 4 Number 5 45 seconds

The average of 3 numbers is 50. A 4th number is added to the list. The new average is now 100. What is the 4th number?

A. 150
B. 250
C. 350
D. 400

133

2021 M.A.T.H. Bowl Area Round 4 Number 5

The average of 3 numbers is 50. A 4th number is added to the list. The new average is now 100. What is the 4th number?

B. 250

Let x = 4th number
3(50) = 150 is the sum of the first three

(150 + x) ÷ 4 = 100
150 + x = 100(4)
150 + x = 400
x = 250

136

2021 M.A.T.H. Bowl Area Round 4 Number 6 45 seconds

Javi was bragging to his brother about how fast he can ride his bike. Javi leaves an hour later than his brother. If Javi travels at 12 mph while his brother travels at 8 mph, how long will it take Javi to catch up to his brother?

A. 1 hour
B. 2 hours
C. 3 hours
D. 4 hours

137

2021 M.A.T.H. Bowl Area Round 4 Number 6

Javi was bragging to his brother about how fast he can ride his bike. Javi leaves an hour later than his brother. If Javi travels at 12 mph while his brother travels at 8 mph, how long will it take Javi to catch up to his brother?

C. 3 hours

Distance at start time	1 hour later	2 hours later	3 hours later
0 for Javi	0	12	24
0 for brother	8	16	24

140

2021 M.A.T.H. Bowl Area Round 4 Number 7 60 seconds

A dog and a cat together sell for the same price as 12 hamsters. Five cats sell for the price of one dog. How many hamsters would it take to equal the price of one dog?

A. 10 hamsters
B. 8 hamsters
C. 6 hamsters
D. 12 hamsters

141

2021 M.A.T.H. Bowl Area Round 4 Number 7

A dog and a cat together sell for the same price as 12 hamsters. Five cats sell for the price of one dog. How many hamsters would it take to equal the price of one dog?

A. 10

Let d = price of a dog
Let c = price of cat
Let h = price of hamster

d + c = 12h
d = 5c
5c + c = 12h
6c = 12h
c = 2h

d + c = 12h
d + 2h = 12h
d = 10h

144

2021 M.A.T.H. Bowl Area Round 4 Number 8 60 seconds

Four consecutive odd numbers add up to 296. What is the second smallest number?

A. 65
B. 71
C. 73
D. 67

145

2021 M.A.T.H. Bowl Area Round 4 Number 8

Four consecutive odd numbers add up to 296. What is the second smallest number?

C. 73

Odd consecutive numbers are numbers like 3, 5, 7, and 9.
If the first is x, the second is x + 2.
The other two are x + 4 and x + 6.

$x + (x+2) + (x+4) + (x+6) = 296$
$4x + 12 = 296$
$4x = 284$
$x = 71$

x+2 = 73 second smallest
x+4 = 75
x+6 = 77
Sum is 296 so it checks.

148

End
Round
Four

149

Begin
Alternate
Round

152

2021 M.A.T.H. Bowl Area Alternate Round Number 1 30 seconds

What are the missing terms in this sequence?

8, __, 24, 32, __, __,

A. 16, 38, 42
B. 16, 64, 128
C. 12, 40, 52
D. 16, 40, 48

153

2021 M.A.T.H. Bowl Area Alternate Round Number 1

What are the missing terms in this sequence?

8, __, 24, 32, __, __,

D. 16, 40, 48

This is a list of multiples of 8
8 x 1 = 8
8 x 2 = 16
8 x 3 = 24
8 x 4 = 32
8 x 5 = 40
8 x 6 = 48

156

2021 M.A.T.H. Bowl Area Alternate Round Number 2 30 seconds

List the cubes of the numbers from 1-5.

A. 1, 8, 27, 64, 125
B. 8, 27, 64, 125, 216
C. 3, 6, 9, 12, 15
D. 1, 3, 6, 9, 12

157

2021 M.A.T.H. Bowl Area Alternate Round Number 2

List the cubes of the numbers from 1-5.

A. 1, 8, 27, 64, 125

1x1x1 = 1
2x2x2 = 8
3x3x3 = 27
4x4x4 = 64
5x5x5 = 125

160

2021 M.A.T.H. Bowl Area Alternate Round Number 3 45 seconds

If Kaylee reads 2.1 pages per minute, how many pages does she read in 2.75 hours?

A. 173.25
B. 346.5
C. 693
D. 519.75

161

2021 M.A.T.H. Bowl Area Alternate Round Number 3

If Kaylee reads 2.1 pages per minute, how many pages does she read in 2.75 hours?

B. 346.5

2.1 pages/minute (60 minutes/hour) (2.75 hours) = 346.5 pages

164

2021 M.A.T.H. Bowl Area Alternate Round Number 4 45 seconds

Nathan weighs only 50% of his dad's weight. If their total weight is 243 pounds, how much does Nathan weigh?

A. 86 pounds
B. 91 pounds
C. 72 pounds
D. 81 pounds

165

2021 M.A.T.H. Bowl Area Alternate Round Number 4

Nathan weighs only 50% of his dad's weight. If their total weight is 243 pounds, how much does Nathan weigh?

D. 81 pounds

Let x = Nathan's weight
2x = dad's weight

x + 2x = 243
3x = 243
x = 243/3
x = 81

168

2021 M.A.T.H. Bowl Area Alternate Round Number 5 60 seconds

Find the 100th term in the following sequence:

2, 5, 8, 11 ….

A. 133
B. 233
C. 299
D. 199

169

2021 M.A.T.H. Bowl Area Alternate Round Number 5

Find the 100th term in the following sequence:

2, 5, 8, 11 ….

C. 299

This is an arithmetic sequence.

$A_n = d(n-1) + c$ where n = 100, d = 3 and c = 2

$A_{100} = 3(100-1) + 2$
$A_{100} = 3(99) + 2$
$A_{100} = 297 + 2$
$A_{100} = 299$

172

2021 M.A.T.H. Bowl Area Alternate Round Number 6 45 seconds

2 Apples + 1 Cherry = Pear
3 Cherries – 2 Apples = Pear

How many cherries equal a pear?

A. 1
B. 3
C. ½
C. 2

173

2021 M.A.T.H. Bowl Area Alternate Round Number 6

2 Apples + 1 Cherry = Pear
3 Cherries – 2 Apples = Pear

How many cherries equal a pear?

2 Apples + 1 Cherry = Pear
– 2 Apples + 3 Cherries = Pear
4 cherries = 2 pears
2 cherries = 1 pear

D. 2

176

2021 M.A.T.H. Bowl Area Alternate Round Number 7 60 seconds

A math book plus two science books cost $86. Five math books minus the price of two science books is $64. What is the cost of one science book?

A. $25.50
B. $50.00
C. $25.00
D. $30.50

177

2021 M.A.T.H. Bowl Area Alternate Round Number 7

A math book plus two science books cost $86. Five math books minus the price of two science books is $64. What is the cost of one science book?

D. $30.50

Let x = price of math book
Let y = price of science book

x + 2y = 86
5x – 2y = 64

Add those equations together
6x = 150, then divide by 6
x = $25 is cost of math book
Put this back into first equation
25 + 2y = 86
Subtract 25 from both sides
2y = 61 and divide by 2
y = $30.50

180

2021 M.A.T.H. Bowl Area Alternate Round Number 8 60 seconds

Michael has red, blue, white and brown socks in his sock drawer, and none are matched up. What is the least number of times he would need to draw out one sock at a time blindfolded to guarantee a match?

A. 8 ##
B. 2 ##
C. 5
D. 4 ##

181

2021 M.A.T.H. Bowl Area Alternate Round Number 8

Michael has red, blue, white and brown socks in his sock drawer, and none are matched up. What is the least number of times he would need to draw out one sock at a time blindfolded to guarantee a match?

C. 5
##

In the worst case, every time he draws a sock, it is different from the ones drawn before. So if the first 4 are all different, the fifth sock drawn will have to match one of the first four.

184