Review 1

Ivan Hu

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Rules

You will have 90 seconds for each round. Write your final answers on a sheet of paper. Once time is called, you *must not write* until I check your answers.
The first four problems per round are worth 2 points each. The fifth is worth 3 points.
For the first four rounds, calculators are allowed. After that, they are banned.
You may *only ask about definitions.* (For example, what a GCD is.)
All fractions must be in lowest terms.

Round 1

Calculators allowed

1. Simplify $\frac{5}{8} + \frac{1}{8} - \frac{3}{4}$.
2. Find $527 + (34 \times 5)$.
3. List all prime factors of 210.
4. Find the least common multiple of 99 and 30.
5. How many even numbers are between 11 and 51?

Round 1

Time's up!

Round 1

Answers

1. 0
2. 697
3. 2,3,5,7
4. 990
5. 19

Round 2

Calculators allowed

1. Which is greater, $\frac{131}{401}$ or $\frac{163}{501}$?
2. The GCD of two numbers is 1 and their LCM is 73. What is the smaller number?
3. Bob uses 50 bricks to fix something. In the process, he breaks 10 bricks, which are worth \$73. How much did all the bricks cost?
4. Convert 0.875 to a fraction.
5. Find the sum of all two digit whole numbers.

Round 2

Time's up!

Round 2

Answers

1. $\frac{131}{401}$
2. 1
3. \$365
4. $\frac{7}{8}$
5. 4905

Round 3

Calculators allowed

1. Round 157823 to the nearest thousand.
2. Find the smallest number bigger than 100 that is a multiple of 11.
3. Find $\frac{1}{5} \div \left(\frac{1}{4} + \frac{3}{8}\right)$.
4. After 5 days of working at the paper airplane factory at \$50 a day, I spend all my money on 120 bottles of strawberry lemonade, and I have \$10 left over. How much does each bottle of strawberry lemonade cost?
5. Mr. Wu has a magic money box. He places a penny in the box on January 1, and every day the amount of pennies in the box doubles. On January 31, the box is full. When was it half full?

Round 3

Time's up!

Round 3

Answers

1. 158000
2. 110
3. $\frac{8}{25}$
4. \$2
5. January 30

Round 4

Calculators allowed

1. A bottle of health potion is $\frac{3}{5}$ full. 3.5 milliliters of potion are required to fill it completely. If 1 full bottle of health potion costs 28 gold, how much does $\frac{3}{4}$ milliliters of potion cost, in decimal?
2. How many composite numbers are between 1 and 11?
3. Complete the sentence:

$$3 \times \_\_ = 1413 \times 9.$$

4. Find $17\frac{1}{4} + 3\frac{2}{3}$. Express your answer as a mixed number.
5. What is the smallest number (greater than 1) that is both a perfect square and perfect cube?

Round 4

Time's up!

Round 4

Answers

1. 2.4 gold
2. 6
3. 4239
4. $20\frac{11}{12}$
5. 64

Warning

Calculators are now BANNED.

Round 5

Calculators banned

1. Find $2 \times \frac{5}{11} + 3 \times \frac{4}{33}$.
2. Find $5^2 + 6^2 + 2 \times 6 \times 5$.
3. Alice takes 4 seconds to fold a paper airplane. She teams up with Bob in a team paper airplane folding contest. If they can both fold 35 planes in one minute, how many seconds does it take for Bob to fold a paper airplane?
4. Among the numbers from 463 to 476, how many are multiples of 7?
5. Find the LCM of 1,2,3,4,5,6,7,8,9,10.

Round 5

Time's up!

Round 5

Answers

1. $\frac{14}{11}$
2. 121
3. 3
4. 2
5. 2520

Round 6

Calculators banned

1. Find $\frac{34}{119} + \frac{39}{91}$ in lowest terms.
2. Find $\gcd(2018, 2019)$.
3. Jack wants to buy a geometry textbook for \$78.91, a frisbee for \$16.53, and a 12-pack of pens for \$3.97. How many 10 dollar bills will he need to buy them all at once?
4. Find the 20th triangular number.
5. Find
$$\left(1 - \frac{1}{3}\right) \times \left(1 - \frac{1}{4}\right) \times \cdots \times \left(1 - \frac{1}{10}\right).$$

Round 6

Time's up!

Round 6

Answers

1. $\frac{5}{7}$
2. 1
3. 10
4. 210
5. $\frac{1}{5}$

Round 7

Calculators banned

1. Find $8^3 - 9^2$.
2. Express $0.75 \times \frac{4}{9} - 0.25 \times \frac{1}{3}$ as a decimal.
3. Find $56 \times 23 + 56 \times 37$.
4. In the star system of 1234abcd, planet 1 orbits the star every 12 years, and planet 2 orbits the star every 20 years. How many years will pass before the planets return to the same position as right now (relative to the star)?
5. Find $\gcd(1337, 9001) \times \text{lcm}(1337, 9001)$.

Round 7

Time's up!

Round 7

Answers

1. 431
2. 0.25
3. 3360
4. 60
5. 12034337

Round 8

Calculators banned

1. Express 42 km in m.
2. Find the reciprocal of $2\frac{1}{2} \times 3\frac{2}{5} \div \frac{3}{5}$ as an improper fraction.
3. Find $(2 + 4 + 6 + \cdots + 40) - (1 + 3 + 5 + \cdots + 39)$.
4. The cost of 6 bananas is the same as the cost of 2 mangoes. If I buy 3 bananas and 4 mangoes for \$30, how much does a mango cost?
5. Among the fractions $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \ldots, \frac{1}{20}$, how many do *not* have an infinite decimal form?

Round 8

Time's up!

Round 8

Answers

1. 42000 m
2. $\frac{6}{85}$
3. 20
4. \$2
5. 7

Round 9

Calculators banned

1. Which number is equal to $58.75 \times 47.5 \div 44.65$?
   (a) 6.25
   (b) 62.5
   (c) 625
   (d) 6250
2. Find $367 \times (733 + 917) - 1650 \times (962 - 595)$.
3. The cost of making a cake is \$3. If the baker wants to make a profit of \$5 per cake and the cake is to be cut into 16 pieces, how much should each piece sell for, in cents?
4. Convert 23 km 124 cm into m.
5. Find
$$\frac{1}{1 \times 2} + \frac{1}{2 \times 3} + \frac{1}{3 \times 4} + \cdots + \frac{1}{99 \times 100}.$$

Round 9

Time's up!

Round 9

Answers

1. (b)
2. 0
3. 50 cents
4. 23001.24 m
5. $\frac{99}{100}$

Something is coming . . .

Super Challenge Question!

This is worth 10 points!
You have unlimited guesses. However, *you may not guess again until all other teams have guessed or 2 minutes have passed since a guess.*

Calculators are still banned.

Super Challenge Question!

How many whole numbers between 1 and 1000 (including 1) have an odd number of factors?

(E.g. 36 has 1,2,3,4,6,9,12,18,36 as factors, so it has 9 factors, which is odd.)