

Student name: _____ Room number: _____

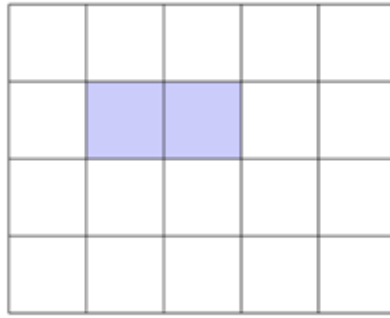
Team ID: _____

#	Answer	Points (0/1)
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Graders:	Total: 1
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Problems

1. What is $1 + 3 + 5 + 7 + 9 + 11 + 13 + 15$?
2. What is 78% of 50?
3. Brian has a potted plant that needs to be watered
 - once on day 1,
 - 3 times on day 2,
 - 9 times on day 3,... and so on. How many times will the plant need to be watered on day 6?
4. 32 frisbee teams participate in a tournament where the loser of each game is eliminated. How many games need to be played until 1 team remains?
5. William and Daniel are running on a circular track. If William runs at a constant rate of 1 loop per minute, and Daniel runs 1.5 times as fast, how many loops does Daniel run in 8 minutes?
6. Andy has a 40-ounce candy salad made up of 30% gummy worms, 30% licorice, and 40% jolly ranchers. He adds in his friend Brian's 20-ounce candy salad, which is 40% licorice, 20% gummy worms, and 40% jolly ranchers. How many ounces of gummy worms are now in the candy salad?
7. If Angela can build 2 robots in 3 days, and Avery can build 4 robots in 12 days, how many days will it take them to build 12 robots if they work together?
8. What is the 9th number in the sequence that starts with: 2, 1, 3, 4, 7, ... ?
9. A diagonal is a line connecting 2 non-adjacent vertices of a polygon. How many diagonals are there in a regular hexagon?
10. Arman draws a 4 by 5 grid on the whiteboard in math class. How many pairs of adjacent cells are there in the grid, like the pair of highlighted cells in the diagram? (Adjacent cells share an edge).

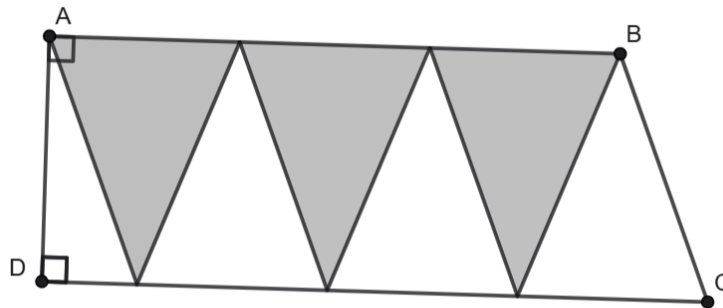


11. A Jenga block has a length of 3 inches, a width of 1 inch, and a height of 1 inch. If Khoi stacks 27 Jenga blocks to make a Jenga tower, what is the volume of the tower in cubic inches?
12. Augustine is planning a 10-day trip to China. Using the table below, determine which month out of the three would be the cheapest for him to go.

Month	Plane Ticket (roundtrip)	Hotels (per day)	Food and Drink (per day)
June	\$700	\$200	\$50
July	\$300	\$220	\$30
August	\$1500	\$100	\$20

13. Andrew applied to Harvard and the University of Washington. If Harvard randomly accepts 10 out of every 100 applicants, and University of Washington randomly accepts 20 out of every 100 applicants, what is the probability, as a percent that Andrew gets into Harvard but not the University of Washington?
14. If 2 wrongs make a right and 3 lefts make a right, how many lefts make a wrong?
15. Hao-Ran has a cardboard box and he measures that its dimensions are 10 inches by 11 inches by 7 inches. However, exactly one of his measurements was off by 1 inch. What is the difference between the maximum and minimum possible volumes of the box in cubic inches?
16. On Uncle William's farm of genetically modified animals, there are three-tailed cows and two-tailed chickens. If there are a total of 16 animals on the farm and two more cows than chickens, how many total tails are there?

17. Marissa has a drawer of fun hats. There are 10 top hats, 3 birthday hats, 7 cowboy hats, and 12 beanies. Marissa randomly draws hats from the drawer. How many hats does she need to draw to guarantee she has at least one hat of each type?
18. If Alex flips 4 coins, what is the probability he gets exactly 3 heads? Express your answer as a simplified fraction.
19. ABCD is a right-angled trapezoid, with AD perpendicular to DC. It has been divided into 6 congruent isosceles triangles and right triangle ADE. What fraction of ABCD is shaded? Express your answer as a simplified fraction.



20. Curious George is looking under large and small rocks in his garden. Each rock has a chance of having a gem underneath, with a large rock having a $\frac{3}{5}$ chance and a small rock $\frac{1}{2}$ chance. If George looks under 10 different large rocks and 8 different small rocks, how many gems can he expect to find?
21. In triangle ABC, sides AB and BC have lengths 10 and 7 respectively. What is the product of the maximum and minimum possible integer lengths of AC?
22. A row of chairs is numbered 1 to 2026 from left to right. Grace starts removing chairs from the right end of the row and packs up two chairs every minute, while Henry starts from the left and removes only one chair every minute. Eventually, there will be only one chair left. What number does it have?
23. In a land of constant rain, a circular bucket with a 1-foot radius catches 1 gallon of water in 12 hours. If Roman needs to collect 27 gallons of water in just 1 hour with one circular bucket, what should the radius of his bucket be, in feet?

24. In how many ways can a violinist, a cellist, a violist, and a trumpeter be seated in a row of five seats in the orchestra such that both seats at the ends of the row are occupied?
25. From 6:00 AM to 6:00 PM, how many times does the minute hand cross the hour hand?

Answers

1. 64
2. 39
3. 243
4. 31
5. 12
6. 16
7. 12
8. 47
9. 9
10. 31
11. 81
12. August
13. 8 or 8%
14. $\frac{3}{2}$ or 1.5 or $1\frac{1}{2}$
15. 220
16. 41
17. 30
18. $\frac{1}{4}$ (non-simplified fractions not accepted)
19. $\frac{6}{13}$ (non-simplified fractions not accepted)
20. 10
21. 64
22. 676
23. 18
24. 72
25. 11