"Math is Cool" Masters -- 2021-22

5th Grade

Mental Math Solutions

	Answer	Solution
1	75 [minutes]	How many minutes are there between 10:45 AM and 12 noon on the same day? 10:45 to 12:00 = 1 hr 15 min = 75 minutes
2	9752	What is the largest counting number that can be made by using all of the following digits once each? Five, seven, two and nine. Largest digits in largest place values.
3	13 [vertices]	Brayden draws three triangles and one rectangle on his paper, with none of the shapes overlapping. How many total vertices does he draw? 3*3 + 1*4 = 13
4	13	What is the smallest whole number you could multiply 8 by to get a product that is greater than one hundred? 8*12 = 96 8*13 = 104
5	34 [dimes]	Jacob has three dollars and forty cents in dimes. How many dimes does Jacob have? 34*10 = 340 cents
6	338	What is the product of 26 and 13? 2(13^2)
7	11	What is the median of the following set of six numbers? { 10, 15, 8, 22, 5, 12 } Find two middle numbers and take the average.
8	45000	How many even 5-digit counting numbers are there? 5-digit counting numbers are 10000 – 99999, 90000 total. Half of them are even.

"Math is Cool" Masters -- 2021-22

5th Grade

Individual Test Solutions

	Answer	Solution
1	4	What digit is in the thousands place of the following number: 124,809 **4 is in the thousands place.**
2	569	Evaluate: 657 – 88 657 – 88 = 569
3	45	Josue's favorite whole number is greater than 40 but less than 50 and is divisible by 5. What is Josue's favorite whole number? 45 is the only number between 40 and 50 that is divisible by 5.
4	74 [inches]	Packard is 6 feet 2 inches tall. How many inches tall is he? 6*12 + 2 = 74
5	2	How many diagonals does a rectangle have? From one corner to the opposite corner.
6	7	How many multiples of 4 are between 25 and 55? 4*7 -- 4*13
7	31	What is the next number in this sequence: 1, 3, 7, 13, 21…? add increasing even numbers, +2, +4, …
8	53	What is the first prime number that is greater than 50? 51 and 52 are not prime
9	82 (degrees)	If two of the interior angles of a triangle have measures of 76 degrees and 22 degrees, what is the measure of the third angle (in degrees)? 180 - 76 - 22 = 82

<table>
<tr><td>10</td><td>13</td><td>Saathvik went to a petting zoo that had a total of 25 animals, as shown in the table. How many llamas were at the petting zoo?

<table>
<tr><th>Animal</th><th>Number</th></tr>
<tr><td>Baby goat</td><td>6</td></tr>
<tr><td>Miniature horse</td><td>2</td></tr>
<tr><td>Llama</td><td>?</td></tr>
<tr><td>Pig</td><td>4</td></tr>
</table>

25 – 6 – 2 – 4 = 13</td></tr>
<tr><td>11</td><td>4932</td><td>Which of the following is the smallest number? 4932 5061 5132 4982

4932 is the smallest</td></tr>
<tr><td>12</td><td>20 (meters)</td><td>What is the perimeter in meters of a regular pentagon with a side length of 4 meters?

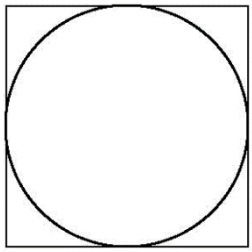
4*5 = 20</td></tr>
<tr><td>13</td><td>123 [hours]</td><td>Gregg bales hay for 3 hours each day. If it will take Gregg 41 days to bale all of his hay, how many hours will it take him to bale all of his hay?

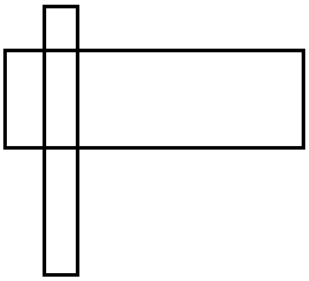
41*3</td></tr>
<tr><td>14</td><td>17</td><td>Sana wants to swap one of the numbers on the top line with one of the numbers on the bottom line so that the sums of the numbers on each line is the same. What is the sum of the two numbers that must be swapped?
<table>
<tr><td>8</td><td>9</td><td>3</td><td>10</td><td>6</td></tr>
</table>
<table>
<tr><td>16</td><td>1</td><td>4</td><td>2</td><td>7</td></tr>
</table>

Swap the 10 and the 7, then the sum of each row will be 33.</td></tr>
<tr><td>15</td><td>28 [$]</td><td>Meredith earned $12 dollars one week and $23 the next week. If she gives $\frac{1}{5}$ of her earnings to her mother, how much money in dollars does Meredith have left?

12+23=35
35/5=7
35-7=28</td></tr>
</table>

16	36 (minutes)	Suya goes to bed at 9:46 PM, and reads until 10:22 PM the same night, when she falls asleep. How long did Suya read in bed before falling asleep, in minutes? 9:46 – 10:16 = 30 min 10:16 – 10:22 = 6 min 36 min
17	70	What is 20% of 350? 10% = 35 2x35 = 70
18	125	What is the smallest positive three-digit perfect cube integer? Perfect cubes: 1, 8, 27, 64, 125
19	76 [years]	If the average of Joe's four sisters' ages is 19 years, what is the sum of their ages in years? 4*19
20	2 [Bruno]	One of three brothers, Abe, Bruno or Carl ate the last brownie from the brownie pan. When asked by their father, they gave the following responses: Abe: I didn't eat it! Bruno: Carl ate it! Carl: Abe ate it! Abe is the only one telling the truth. Who ate the last brownie? Answer as an integer using the following code: Abe = 1 Bruno = 2 Carl = 3 Cannot determine = 4 Abe didn't it eat, because he is telling the truth. Bruno is lying when he said that Carl ate it, therefore it must be Bruno that ate it.

21	25	A circle is inscribed in a square with side length 10 units. The area of the circle can be written as $A\pi$ (A times π) square units, where A is an integer. What is the value of A?  Area = πr^2 r = half the side length = 5 Area = $\pi 5^2 = 25\pi$ A = 25
22	120 (ways)	Sahana has 5 siblings. How many different ways can she organize them in a straight line? 5!=120
23	600 [cups]	Silas can stack 4 cups per second. If he continues at this rate, how many cups can he stack in 2 $\frac{1}{2}$ minutes? 2 $\frac{1}{2}$ minutes = 150 seconds 150*4 = 600 cups
24	7	What value of x makes the following true? 14 + 8 = 24 - x + 5 22 = 29 - x x = 7
25	12 [times]	There are 35 marbles in a bag. Seven are yellow, 4 are pink, 12 are white, and the rest are orange. If I draw a single marble randomly from the bag, on average how many times would I pull out an orange marble out of 35 tries? 35 - 7 - 4 - 12 = 12 orange
26	64 (computers)	Gill Bates loves computers. He loves them so much that he buys twice as many computers each day compared to the previous day. On day one, he bought 2 computers. On day two he bought 4, and on day three he bought 8. How many computers did Gill buy on day 6? 2, 4, 8, 16, 32, 64 Multiply by 2 each time.
27	20 [%]	Ruhani has 10 pennies, 4 dimes and 6 nickels in her pocket. If she randomly selects one coin, what is the probability in percent that it is a dime? 4 dimes/20 total = 20/100 = 20%

28	900 [mL]	Coffee is being poured into a large urn at a rate of 3 milliliters (mL) per second. After five minutes, how many milliliters of coffee will be in the urn? 3 mL/sec*60 sec/min*5 min = 900 mL
29	11	A shape consists of two overlapping rectangles. How many total rectangles are in this shape?  The two original overlapping rectangles – 2. Each of those consists of 3 small rectangles but one is the same (overlap) – 5. Two pieces of each rectangle can be joined to make a rectangle in two ways – 4. 2+5+4 = 11
30	143 (minutes)	The Math Is Cool test writers are writing questions. They have to write 24 questions for the next test. They can write 1 question every 5 minutes. If they take a one minute break between every question that they write, how many minutes will it take them to finish the questions? 24*5 + 23*1 = 143 minutes
31	56	Given the data set {7, 22, 6, 43, 19}, what is the sum of the median and the range of the data? med = 19, range = 43 - 6 = 37 19+37 = 56
32	7 (hours)	Edmond is chasing his evil counterpart, Joseph. Edmond runs at 18 mph and Joseph runs at 14 mph. If Joseph gets a two-hour head start, how many hours will Edmond have to run to catch up to him, assuming they both run at a constant rate? In the 2-hour head start, Joseph will run 14*2 = 28 miles. Edmond catches up at 18 – 14 = 4 mph. He will have to run 28/4 = 7 miles.

33	135 (degrees)	The clock shows that the time is 1:30 pm. What is the measure, in degrees, of the smaller angle between the minute hand and the hour hand? 180 from 12 to 6, 30+15=45 deg from 12 to 1.5 180-45=135 deg
34	15 (cupcakes)	Mikaila has 49 cupcakes. She gives 24 cupcakes to her friend, Kaylee. Then, Mikaila gives 20% of her remaining cupcakes to their friend Jonah. After that, she gives $\frac{1}{4}$ of her remaining cupcakes to Maddax. How many cupcakes does Mikaila have left? 49-24=25 25-5=20 20-5=15
35	384 [cm^2]	My rectangular phone has a perimeter of 88 centimeters. The length is 8/3 times longer than the width. What is the surface area of the front side of my phone in square centimeters? W + L = 44 W + (8/3)W = 44 (11/3)W=44 W=12 L=32 Area = (12)(32)=384
36	36 (lollipops)	A candy jar is full of lollipops. One-sixth of them are grape-flavored, 1/3 of them are lime-flavored, 3/10 of them are strawberry-flavored, and the rest are cotton-candy flavored. The jar has between 160 and 200 lollipops. How many lollipops are cotton-candy flavored? Assume that there is a whole number of each lollipop flavor. 1/6 + 1/3 +3/10 = 24/30, 30 is the LCM, = 144/180 180 - 144 = 36
37	6	A new function is defined as follows: a & b = $\frac{a!+b!}{2a+3b}$ What is the value of 3 & 5? 3! + 5! = 126 2(3) + 3(5) = 21 126 / 21 = 6

38	272	Emily only likes positive integers that are a multiple of 17 and Christina only likes positive integers that have a 2 in the ones place. What is the second smallest number that they both like? 17*6=102 17*16=272
39	3 [children]	Biff and Eho are hosting a science fair. Tickets for children cost $3, and tickets for adults cost $5. On Saturday, the total ticket sales are $374. What is the fewest number of children that could have attended the fair on Saturday? 3x + 5y = 374 Test: x = 0, 1, 2 don't work, because y is not an integer. x = 3 is the fewest number that works.
40	90 (palindromes)	A palindrome is a positive integer that reads the same in either direction, like 121. How many four-digit palindromes are there? 9 options for the first digit (1-9) and 10 options for the second digit (0-9) for a total of 9* 10=90 palindromes.

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5th Grade

Multiple Choice Solutions

<table>
<tr><th></th><th>Answer</th><th>Solution</th></tr>
<tr><td colspan="3">

USE THE FOLLOWING MAP AND KEY TO SOLVE PROBLEMS #1 THROUGH #3.

Cowachella Musical Performance Schedule and Ticket Prices:

<table>
<tr><th>Performer</th><th colspan="4">Scheduled Show Times</th></tr>
<tr><td>Hereford Trio</td><td>9:15 AM</td><td>12:45 PM</td><td>4:15 PM</td><td>5:45 PM</td></tr>
<tr><td>Texas Longhorns</td><td>8:15 AM</td><td>10:15 AM</td><td>5:15 PM</td><td>6:15 PM</td></tr>
<tr><td>Angus Red</td><td>12:00 PM</td><td>1:15 PM</td><td>2:30 PM</td><td>3:45 PM</td></tr>
</table>

<table>
<tr><th>Ticket Prices</th><th>Morning (Before 12 PM)</th><th>Afternoon (12 PM or later)</th></tr>
<tr><td>Adult</td><td>$5.00</td><td>$6.00</td></tr>
<tr><td>Child</td><td>$3.00</td><td>$4.00</td></tr>
</table>

</td></tr>
<tr><td>1</td><td>B</td><td>Geronimo and his friends want to go to the local music festival (Cowachella) and see the 9:15 AM Hereford Trio show. If they need 3 Adult tickets and 5 Child tickets, how much do they need to pay?

A) $25 B) $30 C) $50 D) $8 E) Answer not given

3*5 + 5*3 = 30</td></tr>
</table>

2	B	Rowdy wants to start by attending the 8:15 AM Texas Longhorns show, which is scheduled to last for 45 minutes. How many minutes, would he need to wait until the start of the 1:15 PM Angus Red show? A) 250 min B) 255 min C) 300 min D) 315 min E) Answer not given 8:15 am + 45 min = 9 am 1:15 PM - 9:00 AM = 4.25 h 4*60 + 15 = 255 min
3	A	Baylor decides to randomly pick one of the scheduled afternoon shows to attend. What is the probability that she ends up attending a Hereford Trio show? A) 1/3 B) 1/2 C) 2/3 D) 3/4 E) Answer not given 3 Hereford Trio afternoon shows / 9 total afternoon shows = 1/3

USE THE FOLLOWING INFORMATION TO SOLVE PROBLEMS #4 THROUGH #6.

A positive integer N has the following kinds of divisors:

Prime divisors: The set of prime numbers that divide N. For example, if N = 75, the prime divisors are 3 and 5.

Positive divisors: The set of positive integers that divide N. For example, if N = 75, the positive divisors are: 1, 3, 5, 15, 25 and 75.

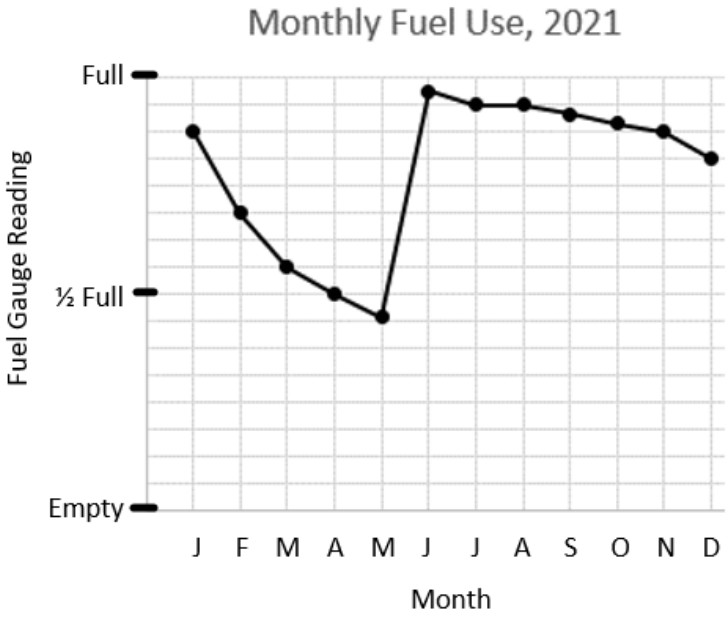
Proper divisors: The set of proper divisors is the set of positive divisors that are different from N. For example, if N = 75, the proper divisors are: 1, 3, 5, 15 and 25.

4	C	How many positive divisors does 36 have? A) 6 B) 8 C) 9 D) 12 E) Answer not given Divisors of 36 are: 1, 2, 3, 4, 6, 9, 12, 18, 36

5	E	How many more proper divisors than prime divisors does 36 have? A) 2 B) 3 C) 4 D) 5 E) 6 Proper divisors = 1, 2, 3, 4, 6, 9, 12, 18 Prime divisors = 2, 3 8 – 2 = 6
6	D	A 'repdigit' is an integer which only contains one repeated digit, such as 22, 333, or 4444. How many of the following numbers are positive divisors of all 3-digit repdigits? 1, 3, 5, 11, 37, 101, 121 A) 0 B) 1 C) 2 D) 3 E) 4 A 3-digit repdigit: xxx = x(111) = x(3)(37) Therefore, divisors of all = 1, 3, 37, 111

USE THE FOLLOWING INFORMATION TO SOLVE PROBLEMS #7 THROUGH #10.

The following graph shows the remaining fuel level on the first day of each month in the propane fuel tank at the Repp household in West Richland, WA. When the fuel tank is full, it holds 480 gallons. The tank was refilled during the month of May.



7	A	According to the graph, during which month of the year did the amount of fuel in the tank decrease most rapidly? A) January B) February C) May D) NovemberE) Answer not given The most fuel was used in January, the level decreased by 90 gallons.
8	D	How many gallons of fuel were used in the months of January and February combined? A) 30 B) 50 C) 100 D) 150 E) Answer not given Full = 480 gallons Therefore each unit on the y-axis is 480/16 = 30 gallons. From 1/1 to 3/1 it goes down 5 units, or 5*30 = 150 gallons.
9	C	Propane costs $3.27 a gallon. What was the cost of the fuel used from July 1st through December 1st? A) $98.10 B) $150.21 C) $196.20 D) $294.30 E) Answer not given 60 gallons * $3.27/gallon = $195

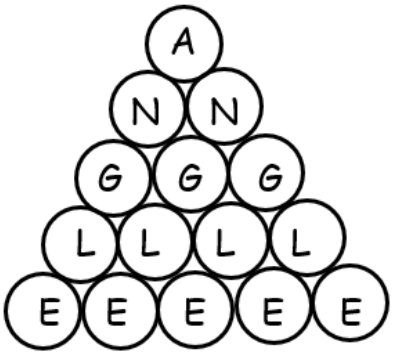
10	*A*	What was the median number of gallons of fuel in the tank at the beginning of each month for January through December, 2021? A) 420 B) 425 C) 430.5 D) 440 E) Answer not given Sort the data values at the beginning of each month from smallest to largest. The median is the mean of the two center values, which are both 420. May 215 April 240 March 270 Feb 330 Dec 390 Jan 420 Nov 420 Oct 430 Sept 440 July 450 Aug 450 June 465 Alternatively, look at the graph and cross off dots from the top and bottom. The middle two dots are in January and November, both of which are at 420.

"Math is Cool" Masters -- 2021-22

5th Grade

Team Test Solutions

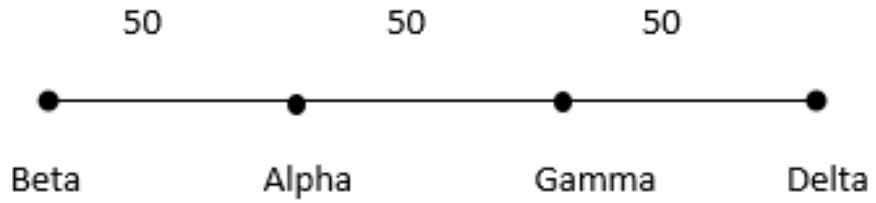
	Answer	Solution
1	100	Evaluate: $7^2 + 3 \times 17$ 49+51=100
2	17	What is the range of the following data set? { 10, 15, 8, 22, 5, 12} 22 – 5 = 17
3	19 [dollars]	Dunkin' Bagels sells cheese bagels for $6.00 each, jalapeno bagels for $5.00 each, and cups of coffee for $3.00 each (tax included). Darryl buys 3 cheese bagels, 2 jalapeno bagels, and 1 cup of coffee, and pays using a 50-dollar bill. How much change, in dollars, does Darryl receive? 3*$6 + 2*$5 + 1*$3 = $31 50 – 31 = 19$
4	36 [feet]	A rectangle has a length and width that are whole numbers. If the area of the rectangle is 17 square feet, what is its perimeter in feet? Dimensions are 1x17, perimeter = 2x1 + 2x17 = 24
5	121 [total marbles]	A bag contains black and white marbles, and the ratio of black to white marbles is 8 to 3. If there are 33 white marbles, how many total marbles are there in the bag? B/W = 8/3 = ?/33 3*11 = 33, therefore 8*11 = 88 black Total = 33+88=121
6	33 [pairs]	How many different pairs of positive integers have a sum of 67? The order of the pairs is not important, a + b is the same as b + a. Start with: 1 + 66, up to 33 + 45 33 pairs

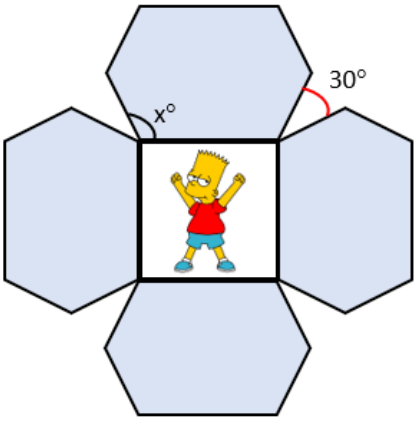
7	31 [numbers]	How many numbers are there in the following finite sequence? 2, 8, 14, 20, …, 182 Adding +6 each time, could list them out.
8	16 [ways]	In how many ways can the word ANGLE be read from the diagram by starting at the A, choosing each next letter from the row below, and only moving to circles that are tangent to (touching) the current circle?  From A, there are 2 ways to move to N. From N, there are 2 ways to move to G, from G there are 2 ways to move to L and from L there are 2 ways to move to E. Therefore, 2x2x2x2 = 16 total paths.
9	13 [squares]	A rectangle has side lengths of 19 and 47. Ishan cuts the rectangle to obtain the largest possible square and another rectangle. He continues to cut the remaining rectangle in a similar manner until only squares remain. How many total squares does Ishan have at the end? Two 19x19 squares Two 9x9 squares Nine 1x1 squares
10	106 [numbers]	How many three-digit counting numbers have a tens digit that is equal to the number of 2s used to write the number? Numbers patterns: X0X — 9*8 = 72 X12 — 8 21X — 9 X22 — 8 22X — 9 72 + 8 + 9 + 8 + 9 = 106

"Math is Cool" Masters -- 2021-22

5th Grade

Linda Moore Triple Jump Solutions

	Answer	Solution
1	650 [copies]	The video game Amidst Us sold 550 copies in January, 600 copies in February, and 800 copies in March. What is the average number of copies of Amidst Us sold over those three months? (550 + 600 + 800)/3 = 650
2	120 [cm^2]	What is the area in square centimeters of a right triangle with leg lengths of 10 cm and 24 cm? 10*24/2 = 120
3	41	The probability of rolling a sum of 8 with two standard six-sided dice, as a reduced common fraction, is A/B. What is A + B ? 5/36 → 5 + 36 = 41
4	100 [miles]	Four towns are located on a straight road. Alpha is equidistant to (the same distance from) Beta and Gamma. Gamma is equidistant to Alpha and Delta. If the distance from Delta to Alpha is 100 miles, what is the distance in miles from Gamma to Beta? 
5	-192	What is the seventh term of the geometric sequence that starts: -3, 6, -12, 24, … ? Common factor = -2 24*(-2) = -48 -48*(-2) = 96 96*(-2) = -192

6	7 [chairs]	Eho's Chair and Stool Emporium sells chairs, which have 4 legs, and stools, which have 3 legs. When counting inventory, Eho notes that he has 12 pieces of furniture on the showroom floor, and 43 legs in total. How many chairs are there? 12*3 = 36, 12 stools accounts for 36 legs 43 – 36 = 7 extra legs are there Each of the extra legs accounts for a table. Check: 7*4 + 5*3 = 43
7	120 [degrees]	Four identical hexagons are used to make a picture frame for a square photo, as shown in the figure. Each triangular region between the hexagons has a measurement of 30°. What is the measure in degrees of angle x? The angle outside of each square corner = 360 – 90 = 270°. 270 – 30 = 240°. 240/2 = 120°. 
8	21 [days]	A spider climbs a 190-ft tall cliff at a rate of 11 feet per day, but it slides back down 2 feet every night when it sleeps. From its morning start on Day 1 at the bottom of the cliff, on which Day number will the spider reach the top of the cliff? 11 – 2 = 9 ft/d (net) 190 / 9 = 21 R1 20*9 = 180 180 + 11 = 191 So, on the 21st day
9	34560 [ways]	Shanice is organizing 4 different history books, 5 different math books, and 2 different Spanish books on her shelf. How many different ways can she arrange the books on her shelf such that the books of each subject are together? 4!*5!*2!*3! = 24*120*2*6 = 24*1440 = 28800 + 2880*2 = 34560

10	182	The number 33306 can be written as a product of two positive consecutive integers. What is the smaller of the two integers? Prime factorization: 33306 = 2x3x7x13x61 Need 2 numbers that end in consecutive digits, so regroup: 3x61 = 183 2x7x13 = 182 OR, can use a brute force approach, starting with 200^2 = 40000, so we're looking for two numbers a bit less than 200.

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5th Grade

College Bowl Round #1 Solutions

	Answer	Solution
1	17	How many quarters are equivalent to 425 pennies? $425/25 = 17$
2	80	Find the mean (average) of the following data set: {80, 77, 83, 80} $320/4 = 80$
3	60	Fabian counts backwards from 100 by eights. The first number he says is 100, then 92, and so on. What is the next number Fabian will say that is evenly divisible by 5? $100, 92, 84, 76, 68, 60$
4	60 [%]	There are 2 green marbles and 3 black marbles in a bag. If one marble is drawn at random, what is the probability in percent that it is not green? $3/5 = 0.6 = 60\%$
5	63 [Starbursts]	In a bowl of Starburst candy, one out of every seven Starbursts is red. If there are nine red Starbursts in the bowl, what is the total number of Starbursts in the bowl? $1/7 = 9/63$
6	11 [cm]	A decagon has the following side lengths in centimeters: 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10. If an equilateral pentagon has the same perimeter as the decagon, what is the side length of the pentagon in centimeters? $1+2+...+10 = 55$ $55/5 = 11$
7	8 [boys]	There are 20 students in a class. The ratio of boys to girls is 2:3. How many boys are in the class? $2:3 \rightarrow 8:12$

8	14	How many numbers between 1 and 100 are divisible by 7? 7*1 = 1 … 7*14 = 98
9	26	Find the 9th term in the following arithmetic sequence: 2, 5, 8, … Add 3 each time 2, 5, 8, 11, 14, 17, 20, 23, 26
10	-5	Evaluate: 1 – 2 + 3 – 4 + 5 – 6 + 7 – 8 + 9 – 10 Each pair is -1, 5(-1) = -5

"Math is Cool" Masters -- 2021-22

5th Grade

College Bowl Round #2 Solutions

	Answer	Solution
1	7440 [seconds]	*Fantasia* is the longest animated Disney movie, with a run time of 2 hours and 4 minutes. How long is *Fantasia* in seconds? 2*60 + 4 = 124 minutes 124*60 = 7440
2	8 [cm}	What is the length of a rectangle in centimeters that has an area of 80 cm^2 and a width of 10 centimeters? 80/10 = 8
3	6	How many perfect square numbers are greater than 10 and less than 100? 16, 25, 36, 49, 64, 81
4	9	How many different ways are there to make $20 using an unlimited supply of $10 bills, $5 bills and $1 bills? TT TFF FFFF TFOOOOO TOOOOOOOOO OOOOOOOOOOOOOOOOOO FFFOOOOO FFOOOOOOOOO FOOOOOOOOOOOOOO
5	264 [points]	On a test with 200 problems, Sameer answered 76% of the questions correctly, left 4% of the questions blank and got the remaining answers incorrect. A correct answer is worth 2 points, a blank answer is 0 points, and an incorrect answer is -1 point. What was Sameer's grade on the test, in points? 200(0.76) = 152 correct x 2 = 304 points 200(0.2) = 40 incorrect x -1 = -40 points 304-40 = 264

6	63 [chickens]	In Eleanor's chicken coop, there are 4 red chickens for every 5 black chickens. Eleanor has more than 60 chickens in the coop. What is the smallest whole number of chickens that she could have? 4:5 or a total of 9, therefore the total amount is divisible by 9. The first multiple of 9 > 60 is 63.
7	25 [%]	Two fair coins are flipped. What is the probability in percent that both of them come up tails? 4 outcomes: HH, HT, TH, TT, ¼ = 25%
8	11 [coins]	Using only pennies, nickels, dimes and quarters, what is the smallest number of coins needed to pay exact change for an ice-cream cone that costs $1.44? 5 quarters 1 dime 1 nickel 4 pennies
9	10	What is the next term in the following number sequence? 10, 8, 11, 9, 12, … Pattern is -2, +3, …
10	21	Find the mode of the following data set: {20, 20, 21, 19, 22, 19, 21, 21} Mode is the most frequent data value.

"Math is Cool" Masters -- 2021-22

5th Grade

College Bowl Round #3 Solutions

	Answer	Solution
1	139 [yards]	How many yards are equivalent to 417 feet? 417/3 = 139
2	80 [%]	What is the probability in percent that a randomly selected integer from 1 to 10 inclusive (including 1 and 10) is not divisible by 5? Only 5 and 10 are divisible by 5, leaving 8 out of 10 numbers that are not.
3	20 [penguins]	On an ice floe, there are some families of penguins. Each family consists of two parent penguins and two baby penguins. If there are 20 baby penguins in total, how many parent penguins are there? Each family has the same number of babies and parents.
4	42 [cards]	Parth and Ingrid have 109 Pokeman cards combined. Parth has 25 more Pokeman cards than Ingrid. How many Pokeman cards does Ingrid have? I + (I + 25) = 109 I = 42 Or use guess and check.
5	300 [$]	Shiv saved $250 and his sister saved twice as much as him. Shiv's brother saved $100 less than Shiv. What was the average savings of the three siblings in dollars? Shiv $250 sister $500 brother $150 average = 900/3 = 300

6	58	Find the sum of the 2nd and 5th terms in the following arithmetic sequence: 9, ___, 25, 33, ___, … +8 each time 9, 17, 25, 33, 41 17 + 41 = 58
7	36	When Yuna divides a number by 3 and subtracts 5 from the result she gets a result of 7. What number did Yuna start with? Work backwards: 7 + 5 = 12 12*3 = 36
8	46 [seats]	Emilio has a ticket in row 26 to watch a baseball game. The row has 80 seats total. The seats numbered 1 to 14 are occupied, as well as the seats from 20 to 31, seat 57 and the seats from 60 to 66. How many open seats can Emilio choose from? 80 – 14 – 12 – 1 – 7 = 46
9	288 [square inches]	What is the total surface area in square inches of a rectangular shoebox with length 12 inches, width 6 inches and height 4 inches? 2x(12x6) = 144 2x(12x4) = 96 2x(6x4) = 48 144+96+48 = 288
10	165 [miles]	A car traveled at 55 miles per hour for three hours. How many miles did the car travel? 55*3 = 165