ATI TEAS Practice Test

Math

Presented by

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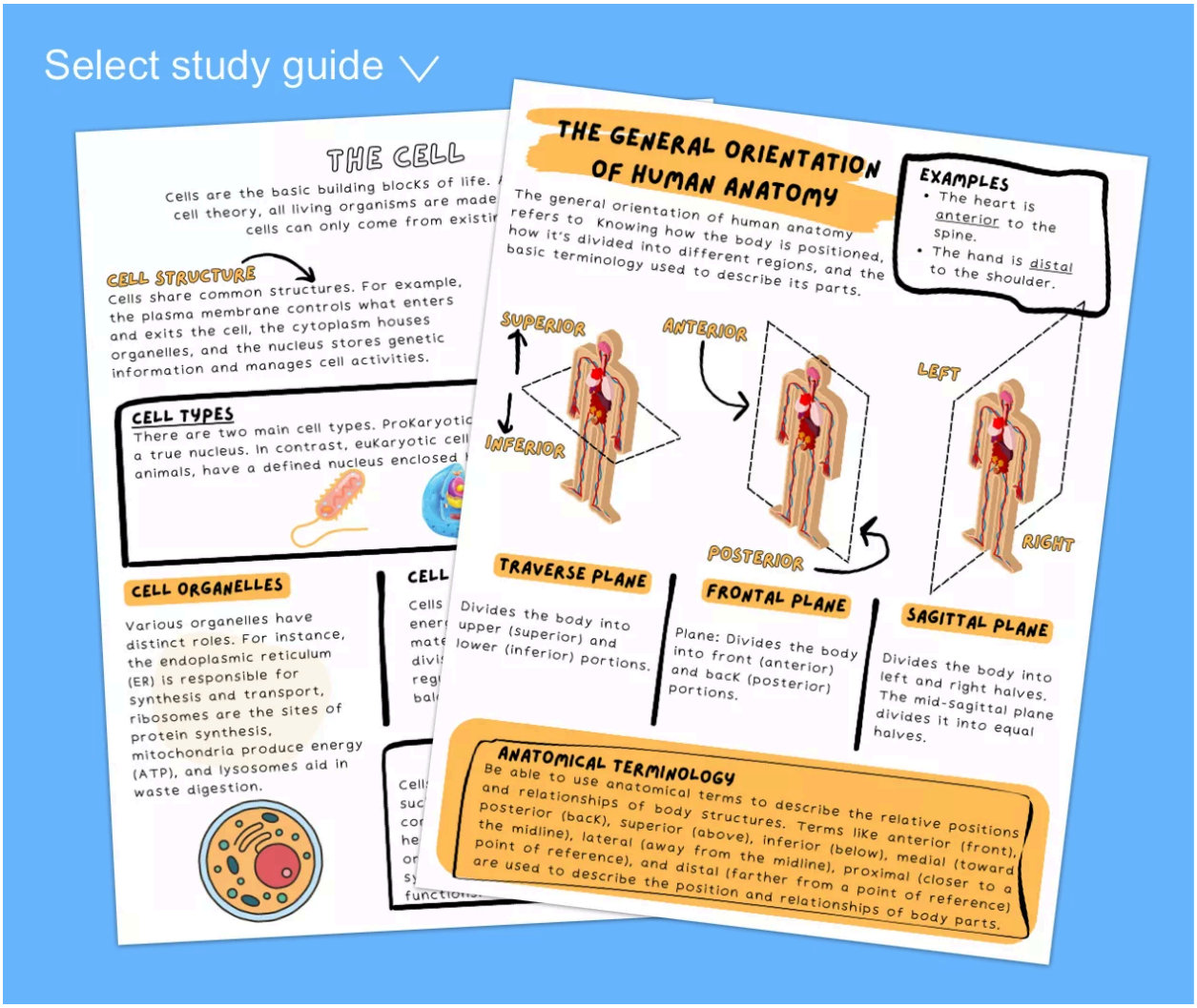
Short summary notes, not mountains of text, on the most important parts of every topic. You just need to pass this test, not become an expert in it.



Math Module

20 questions

1.The largest animal to ever exist still lives to this day. A blue whale can grow up to be 30m long and weigh up to 180,000kg. Which of the following is the length of a blue whale in feet? (1m = 3.28ft)

A. 141.8 ft
B. 33.28 ft
C. 9.14ft
D. 98.4ft

2. A parking lot has 40 parking spaces where each spot measures 18 feet long by 9 feet wide. What is the total parking area available?

A. $6,480ft^2$
B. $162ft^2$
C. $1,080ft^2$
D. $1,921\ ft^2$

3. A teacher records the number of pages of assigned reading and the average time students spend completing the reading. Based on the data, the teacher notices that as the number of pages of assigned reading increases, the average time students spend completing the reading also increases. Explain the relationship between the two variables.

A. As the number of pages of assigned reading increases, the average time students spend completing the reading decreases.
B. As the number of pages of assigned reading decreases, the average time students spend completing the reading increases.
C. As the number of pages of assigned reading increases, the average time students spend completing the reading also increases.
D. There is no relationship between the number of pages of assigned reading and the average time students spend completing the reading.

4. A researcher collects data on the number of hours high school students spend watching television each week and the students' grade point averages (GPAs). The data show that as the number of hours spent watching television increases, the students' GPAs tend to decrease. What is the correlation between the number of hours spent watching television and the students' GPAs?

A.Positive correlation
B.Negative correlation
C.No correlation
D.Cannot be determined

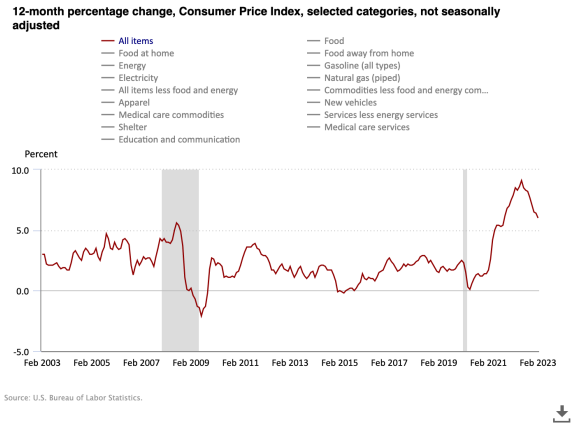
5. In a game, a player flips a fair coin 3 times. What is the probability that the player will get exactly 2 heads and 1 tail?

A. 3/8
B. 1/8
C. 1/4
D. ½

6. Below is a summary of the number of crashes seen at a particular intersection during a six month study period. What was the median number of crashes experienced during the study period?

A. 4.3
B. 3.5
C. 26.0
D. 2.5

7. Which of the following statements is true about the line graph?



A. Inflation was at its lowest point around February 2008
B. Inflation was its highest around November 2008
C. Inflation was at its lowest point around February 2023
D. Inflation was at its lowest point around February 2009

8. The table below shows the number of books read by four students during a summer reading challenge. Which student read 50% more books than Amy?

Student	Books Read
Amy	12
Ben	18
Carol	6
Dan	15

A. Ben
B. Carol
C. Dan
D. None of the above

9. A bookstore sold 120 books last month. If 75% of the books sold were fiction books, how many fiction books were sold?

A. 90
B. 60
C. 30
D. 105

10. A store is having a 25% off sale on all its electronic items. If a pair of headphones originally costs $80, how much will it cost after the discount is applied?

A. $65
B. $60
C. $40
D. $20

11. A store offers a 20% discount on all items during a sale. If a customer buys a shirt originally priced at $45 and a pair of pants originally priced at $60, what will be the total cost of the purchase after the discount?

A. $84
B. $91
C. $105
D. $126

12. A coffee shop sells small cups of coffee for $1.50 each, and large cups of coffee for $2.25 each. If a customer buys 4 small cups and 3 large cups of coffee, how much will the total cost be? Choose the correct answer.

A. $10.50
B. $11.25
C. $12.75
D. $13.50

13. Select a possible simplified version of the following equation: $8(x-4)^2 = 120$

A. $8x^2-64x=248$
B. $(8x-32)^2=120$
C. $8x^2-16x=120$
D. $8x^2=136$

14. Solve for X in the following equation: 3x-7=2(x+4)

A. $X = -1$
B. $X = 15$
C. $X = 3$
D. $X = 1$

15. From the following list of numbers, which one is ordered from least to greatest?

A. $\frac{-6}{2}, \frac{5}{8}, \sqrt{49}, \sqrt{60}$
B. $\frac{-6}{2}, \sqrt{60}, \frac{5}{8}, \sqrt{49}$
C. $\frac{5}{8}, \frac{-6}{2}, \sqrt{60}, \sqrt{49}$
D. $\frac{5}{8}, \sqrt{49}, \frac{-6}{2}, \sqrt{60}$

16. Find the range of the following set of numbers: 12,7,20,9,15

A. 15
B. 13
C. 8
D. 10

17. Evaluate the expression (1/4+1/2)×(2/3−1/6)

A. 1/4
B. 1/2
C. 1
D. 3/8

18. Evaluate the following expression: 5+3×(4−2)÷(1+1)

A. 11
B. 10
C. 7
D. 8

19. What is the difference between $7\frac{3}{12}$ and $3\frac{1}{6}$?

A. 4 2/6
B. 4 1/12
C. 4 1/6
D. 4 ⅓

20. Which of the following is equivalent to 12.5%?

A. 5/9
B. 1/8
C. 0.0125
D. 1/10

MATH QUESTION #	ANSWER(S)
1.	D
2.	A
3.	C
4.	B
5.	A
6.	B
7.	D
8.	A
9.	A
10.	B
11.	A
12.	C
13.	A
14.	B
15.	A
16.	B
17.	D
18.	D
19.	B
20.	B

1.The largest animal to ever exist still lives to this day. A blue whale can grow up to be 30m long and weigh up to 180,000kg. Which of the following is the length of a blue whale in feet? (1m = 3.28ft)

Convert the length of a blue whale from meters to feet. We were told 1 meter is equal to 3.28 feet.

Use ratios to calculate the length of a blue whale in feet.

$$\frac{1m}{3.28ft} = \frac{30m}{x}$$

Where x is a variable that represents the length of a blue whale in feet.

Cross multiply and then solve for x

$$1m * x = 3.28ft * 30m$$
$$x = 98.4ft$$

2. A parking lot has 40 parking spaces where each spot measures 18 feet long by 9 feet wide. What is the total parking area available?

The area of a square or rectangle can be calculated by multiplying the width by the length.

The area of one parking spot is

18ft*9f t=162ft^2 per spot

If there are 40 parking spots, the total area for all the parking spots is

$$162ft^2 \times 40 = 6480ft^2$$

3. A teacher records the number of pages of assigned reading and the average time students spend completing the reading. Based on the data, the teacher notices that as the number of pages of assigned reading increases, the average time students spend completing the reading also increases. Explain the relationship between the two variables.

To answer this question, analyze the given information:

As the number of pages of assigned reading increases, the average time students spend completing the reading also increases.
The two variables are moving in the same direction (both increase).

This relationship indicates that as the number of pages of assigned reading increases, the average time students spend completing the reading also increases.

4. A researcher collects data on the number of hours high school students spend watching television each week and the students' grade point averages (GPAs). The data show that as the number of hours spent watching television increases, the students' GPAs tend to decrease. What is the correlation between the number of hours spent watching television and the students' GPAs?

To answer this question, analyze the relationship between the two variables:

As the number of hours spent watching television increases, the students' GPAs tend to decrease.

The two variables are moving in opposite directions (one increases while the other decreases).
This relationship indicates a negative correlation between the number of hours spent watching television and the students' GPAs.

5. In a game, a player flips a fair coin 3 times. What is the probability that the player will get exactly 2 heads and 1 tail?

Step 1: Find the total number of outcomes when flipping the coin 3 times.
When flipping a coin, there are 2 possible outcomes: heads (H) or tails (T). Since the coin is flipped 3 times, the total number of outcomes is 2 is raised to the third power. Therefore,

$2 * 2 * 2 = 8$

Step 2: Determine the number of outcomes with exactly 2 heads and 1 tail.
The possible outcomes with exactly 2 heads and 1 tail are: HHT, HTH, and THH. There are 3 such outcomes.

Step 3: Calculate the probability.
Probability = (Number of desired outcomes) / (Total number of outcomes)
Probability = 3 / 8

The probability of getting exactly 2 heads and 1 tail when flipping a fair coin 3 times is 3/8.

6. Below is a summary of the number of crashes seen at a particular intersection during a six month study period. What was the median number of crashes experienced during the study period?

The median can be calculated by sorting all the numbers in increasing order and then taking the average of the two numbers in the middle.

In increasing order, the number of crashes during the six month study period go like this:

1,3,3,4,5,10

The two numbers in the middle of the list are 3 and 4. The average of these two can be found by adding them together and dividing the result by 2.

$\frac{3+4}{2} = 3.5$

7. Which of the following statements is true about the line graph?

According to the red line of the graph, the lowest point of the curve occurred around February 2009.

8. The table below shows the number of books read by four students during a summer reading challenge. Which student read 50% more books than Amy?

First, find out how many books are 50% more than the number of books read by Amy. Amy read 12 books, so:

50% of 12 books = 0.5 * 12 = 6 books

Now, add this number to the number of books read by Amy because the question is asking who read 50% more.

12 books + 6 books = 18 books

We are looking for the student who read 18 books. From the table, we can see that Ben read 18 books.

9. A bookstore sold 120 books last month. If 75% of the books sold were fiction books, how many fiction books were sold?

Strategy:
Convert the percentage to a decimal.
Multiply the total number of books sold by the decimal value.

Step 1: Convert the percentage to a decimal

75%=0.75

Step 2: Multiply the total number of books sold by the decimal value

Total books sold = 120
Fiction books sold = Total books sold × Decimal value = 120 × 0.75 = 90

The bookstore sold 90 fiction books last month.

10. A store is having a 25% off sale on all its electronic items. If a pair of headphones originally costs $80, how much will it cost after the discount is applied?

Strategy:
Calculate the discount amount.
Subtract the discount amount from the original price.

Step 1: Calculate the discount amount
Discount rate = 25%
Original price of headphones = $80
Discount amount = Original price × Discount rate = $80 × 0.25 = $20

Step 2: Subtract the discount amount from the original price.
Discounted price = Original price - Discount amount = $80 - $20 = $60

After the 25% discount is applied, the headphones will cost $60.

11. A store offers a 20% discount on all items during a sale. If a customer buys a shirt originally priced at $45 and a pair of pants originally priced at $60, what will be the total cost of the purchase after the discount?

Strategy:
Calculate the discount amount for each item.
Subtract the discount amount from the original price to find the sale price of each item.
Add the sale prices to find the total cost.

Step 1: Calculate the discount amount for each item
Discount rate = 20% = 0.20
Shirt discount = $45 × 0.20 = $9
Pants discount = $60 × 0.20 = $12

Step 2: Subtract the discount amount from the original price to find the sale price of each item
Shirt sale price = $45 - $9 = $36
Pants sale price = $60 - $12 = $48

Step 3: Add the sale prices to find the total cost
Total cost = Shirt sale price + Pants sale price
Total cost = $36 + $48 = $84

The total cost of the purchase after the discount will be $84. The correct answer is $84.

12. A coffee shop sells small cups of coffee for $1.50 each, and large cups of coffee for $2.25 each. If a customer buys 4 small cups and 3 large cups of coffee, how much will the total cost be? Choose the correct answer.

Strategy:
Calculate the cost of the small cups of coffee.
Calculate the cost of the large cups of coffee.
Add the costs to find the total cost.

Step 1: Calculate the cost of the small cups of coffee
Cost per small cup = $1.50
Number of small cups = 4
Total cost for small cups = $1.50 × 4 = $6.00

Step 2: Calculate the cost of the large cups of coffee
Cost per large cup = $2.25

Number of large cups = 3
Total cost for large cups = $2.25 × 3 = $6.75

Step 3: Add the costs to find the total cost
Total cost = Total cost for small cups + Total cost for large cups
Total cost = $6.00 + $6.75 = $12.75

The total cost for 4 small cups and 3 large cups of coffee will be $12.75. The correct answer is $12.75

13. Select a possible simplified version of the following equation:

To solve this algebra problem, follow these steps:

Simplify the exponent expression $(x - 4)^2$ is the same as $(x - 4)(x - 4)$
So our equation becomes

$8\{(x - 4)(x - 4)\} = 120$

Use the FOIL method to simplify $(x - 4)(x - 4)$

$x * x + x *- 4 +- 4 * x +- 4 *- 4$

Which simplifies to

$x^2 + - 4x + - 4x + + 16$

Which further simplifies to

$x^2 +- 8x + 16$

When you multiply opposite signs (example: plus times a minus), the result is a negative. When you multiply the same signs (example: negative times a negative), the result is a positive. Therefore,

+(-8x) becomes -8x
+(+16) becomes 16

Therefore, 8[(x-4)(x-4)]=120 becomes 8[x^2-8x+16]=120

Using PEMDAS, we multiply what's inside the parentheses by 8.

$$8[x^2 - 8x - 16] = 120$$

$$8x^2 - 64x - 128 = 120$$

Which further simplifies to

$$8x^2 - 64x = 120 - 128$$

$$8x^2 - 64x = -8$$

14. Solve for X in the following equation:

To solve this algebra problem, follow these steps:

Distribute the 2 on the right side of the equation.
Move all x terms to one side of the equation and all constants to the other side.
Solve for x

.
Step 1: Distribute the 2 on the right side

$3x - 7 = 2 * x + 2 * 4$
$3x - 7 = 2x + 8$

Step 2: Move all x terms to one side and all constants to the other side

$3x - 2x = 7 + 8$

Now that the x terms are on one side and the constants are on the other side, perform the arithmetic.
$3x - 2x = x$
and
$8 + 7 = 15$

Therefore, the equation becomes $x = 15$

15. From the following list of numbers, which one is ordered from least to greatest?

Convert all the numbers into decimal form and then we can arrange them from least to greatest.

5/8= 0.625
$-\ 6/2 = -\ 3$
$\sqrt{49} = 7$

A square root $\sqrt{49}$ is asking us what number multiplied by itself equals 49. In this case, 7 does.

$\sqrt{60}$, there is no whole number that after multiplied by itself equals 60. However, we can approximate what the number could be. So we know that $\sqrt{60}$ is equal to some number that after multiplied by itself is equal to 60, let's do some trial and error and see if we can get close to 60. Seven times itself equals 49, eight times itself equals 64. So we know that whatever number multiplied by itself is somewhere between 7 and 8. That is enough info to know where $\sqrt{60}$ falls in the least of least to greatest. We know $\sqrt{60}$ is more than 7.0 but it's less than 8.0.

Therefore, from least to greatest

$$-\ 6/2, 5/8,\ \sqrt{49}, \sqrt{60}$$

16. Find the range of the following set of numbers: 12,7,20,9,15

To find the range of a set of numbers, follow these steps:
1) Identify the smallest and largest numbers in the set.
2) Subtract the smallest number from the largest number.

Step 1: Identify the smallest and largest numbers
In the given set 12,7,20,9,15,the smallest number is 7 and the largest number is 20.

Step 2: Subtract the smallest number from the largest number

Range = Largest number - Smallest number

Range=20−7

Range=13

The range of the given set of numbers is 13. The correct answer is 13.

17. Evaluate the expression
(1/4+1/2)×(2/3−1/6)

Use PEMDAS to solve this question. Follow the steps in the correct order:
Parentheses (P)
Exponents (E)

Multiplication and Division (M and D)
Addition and Subtraction (A and S)

Step 1: Parentheses
Evaluate the expressions inside the parentheses:

(1/4+1/2) and

(2/3−1/6)

Convert the fractions to decimals and solve the inside of the parentheses e.g. 1 divided by 4 equals 0.250 and 1 divided by 2 equals 0.5

(0.250+0.500)=0.750 and

(0.667−0.1667)=0.500

Step 2: Exponents
There are no exponents in the expression, so we can skip this step.

Step 3: Multiplication and Division
Multiply the two fractions:

0.750×0.500=0.375

Step 4: Addition and Subtraction
There are no addition or subtraction operations left, so the final result is 0.375. The provided options are in fraction form. Convert 0.375 into a fraction.

375/1000

Simplify the fraction.The greatest common factor (GCF) of 375 and 1000 is 125.

We divide the numerator and denominator by 125 to get simplified fraction of 3/8

18. Evaluate the following expression: 5+3×(4−2)÷(1+1)

Recall that PEMDAS stands for Parentheses, Exponents, Multiplication and Division (from left to right), and Addition and Subtraction (from left to right). Apply these rules in the given order to solve the expression:

$$5+3\times(4-2)\div(1+1)$$

Step 1: Parentheses
First, solve the expressions within the parentheses:

$$(4-2)=2(1+1)=2$$

Now, the expression becomes

$$5+3\times2\div2$$

Step 2: Exponents
There are no exponents in this expression, so we can skip this step.

Step 3: Multiplication and Division (from left to right)
Next, perform multiplication and division in the order they appear, from left to right:

$$3\times2=6$$

The expression then becomes

$$5+6\div2$$

Now, divide:

$$6\div2=3$$

The expression becomes:

$$5+3$$

Step 4: Addition and Subtraction (from left to right)

Finally, perform addition and subtraction in the order they appear, from left to right:

$$5+3=8$$

The answer is 8

19. What is the difference between $7\frac{3}{12}$ and $3\frac{1}{6}$?

The goal here is to subtract $3\frac{1}{6}$ from $7\frac{3}{12}$

but before we can do that, we need to get rid of the mixed numbers (the 3 in $3\frac{1}{6}$

and the 7 in $7\frac{3}{12}$). After we do that, you can only add and subtract fractions when they have a common denominator (bottom number). We will need to convert our fractions to equivalent fractions that just have a common denominator between the two. Once that occurs, we can subtract the two fractions.

Step 1: Simplify the mixed numbers $7\frac{3}{12}$

can be simplified since $\frac{3}{12}$ can be reduced to a simpler form. The greatest common factor of 3 and 12 is 3. So, $\frac{3}{12}$ becomes

$3 \div 3 = 1$
$12 \div 3 = 4$

Now, the simplified fraction becomes 1/4. So, $7\frac{3}{12}$ simplifies to $7\frac{1}{4}$. The other mixed number, $3\frac{1}{6}$, is already in its simplest form and there's no greatest common factor that can make the fraction 1/6 smaller.

Step 2: Convert the mixed numbers to improper fractions. $7\frac{1}{4}$ becomes

$(7 \times 4) + 1 = 29$

The improper fraction is 29/4. $3\frac{1}{6}$ becomes
$(3 \times 6) + 1 = 19$

The improper fraction is 19/6.

Step 3: Find a common denominator
The least common factor (LCF) of 4 and 6 is 12. So, the common denominator for the two fractions is 12.

Step 4: Subtract the fractions
Convert both fractions to equivalent fractions with the common denominator:

$29/4 = (29 \times 3)/(4 \times 3) = 87/12$

$19/6 = (19 \times 2)/(6 \times 2) = 38/12$

Now, subtract the fractions:
$(87/12) - (38/12) = (87 - 38)/12 = (49/12)$

The difference (subtraction) between 7 3/12 and 3 1/6 is 49/12, which can be expressed as a mixed number: 4 1/12.

20. Which of the following is equivalent to 12.5%?

The procedure to convert from percentages to decimals or fractions is as follows:
Divide the percentage always by 100

$$12.5\% \div 100 = 0.125$$

We see that none of the answer choices are 0.125, so maybe we need to convert the number with decimals into an equivalent fraction and see if one of the answer choices is on there but in fraction form. To convert a number with decimals into a fraction, do the following steps.

Extract the decimals and divide them by 10 if there is one decimal place, divide by 100 if there are two decimal places, or divide by 1000 if there are three decimal places. Remember decimals are the numbers to the right of the point so 125 in this case. For this problem, there are three decimal places (125) therefore we divide it by 1000.

$$125/1000$$

Find the greatest common factor (GCF) of 125 and 1,000. The greatest common factor is the largest number that neatly divides into 125 AND into 1,000. If you do some trial and error and just punch in different numbers into the calculator, you'll see the number 125 divides neatly into 125 and into 1,000 because

$$125/125 = 1 \text{ and}$$
$$1000/125 = 8$$

We put those two together to get $1/8$

You need to learn how to convert from decimals to fractions but a trick would have been to take all the answer choices given as fractions and convert them to decimals to see if any other were equal to 0.1

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