

Name: \_\_\_\_\_

School: \_\_\_\_\_

Grade: \_\_\_\_\_

Key

Practice Problem (No points)

Practice Problem

2024

What is 25% of 50% of 72?

$$\frac{1}{4} \left[ \frac{1}{2} (72) \right] = \frac{1}{4} (36) = 9$$

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Practice Problem (No points)

Practice Problem

What is 25% of 50% of 72?

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11 points

5 points

0 points

### Problem 1

John and Alice are both eating from a basket of 375 apples.

Josh can eat 10 apples an hour and Alice can eat 15.

Assuming both of them do not cease their consumption until all apples are exhausted, how many hours will it take for the basket to be empty?

$$10 + 15 = 25 \text{ apples/hr.}$$

$$\frac{375 \text{ apples}}{25 \text{ apples/hr}} \rightarrow 15 \text{ hours}$$

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11 points

5 points

0 points

### Problem 6

What is the sum of all the factors of 60?

1, 60

2, 30

3, 20

4, 15

5, 12

+ 6, 10

$$\frac{\quad}{21 + 147 =}$$

168

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11 points

5 points

0 points

Problem 2

Ashleigh writes three consecutive odd numbers on a paper. The first two numbers, added together, equal 148. What are the three numbers?

Start with 3 expressions:  $x, x+2, x+4$

$$x + x + 2 = 148$$

$$2x + 2 = 148$$

$$2x = 146$$

$$x = 73$$

73, 75, 77

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11 points

5 points

0 points

Problem 7

What is the reciprocal of the difference of the reciprocals of 3 and 4?

$$\frac{1}{3} - \frac{1}{4} = \frac{4}{12} - \frac{3}{12} = \frac{1}{12}$$

Reciprocal of  $\frac{1}{12}$  is 12

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11 points

5 points

0 points

### Problem 3

Simplify the following expression:

$$3^3 + 4(5-3) / 8$$

$$27 + 4(2) / 8$$

$$27 + (8/8)$$

$$27 + 1$$

$$= 28$$

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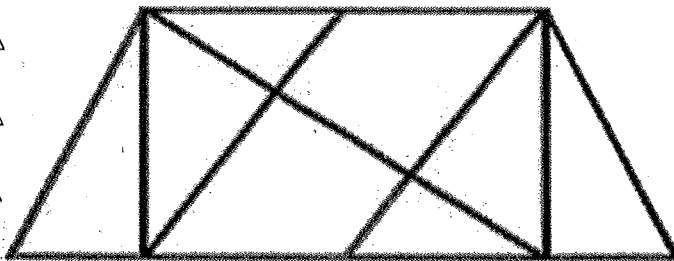
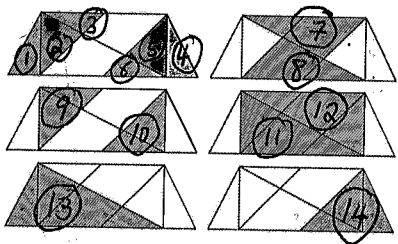
11 points

5 points

0 points

### Problem 8

How many triangles are in this figure?



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11 points

5 points

0 points

Problem 4

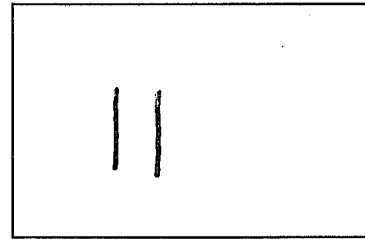
Ryan is 47 years old and Micah is 18 years old.

How many years will it take for Ryan to be double Micah's age?

$$47 + x = 2(18 + x)$$

$$47 + x = 36 + 2x$$

$$x = 11 \text{ yrs}$$



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11 points

5 points

0 points

Problem 9

Find a simplified fractional value of the below expression:

note:

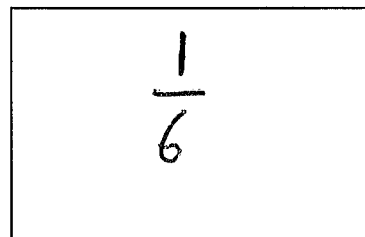
$$\left(\frac{a}{b}\right)^{-1} = \left(\frac{b}{a}\right)^{\frac{1}{2}}$$

$$\frac{\left(\frac{\frac{1}{2} + \frac{2}{3} \times \frac{3}{4} + \frac{4}{5}}{\frac{6}{5}}\right)^{-1}}{4}$$

$$\frac{5}{10} + \frac{5}{10} + \frac{8}{10} = \frac{18}{10} = \frac{9}{5}$$

$$\left(\frac{\frac{1}{2} + \frac{1}{2} + \frac{4}{5}}{\frac{6}{5}}\right)^{-1} = \left(\frac{\frac{9}{5}}{\frac{6}{5}}\right)^{-1}$$

$$= \left(\frac{3}{2}\right)^{-1} = \frac{2}{3} \cdot \frac{1}{4} = \frac{2}{12}$$



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11 points

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0 points

### Problem 10

If  $x \odot y = \frac{2x+4y}{xy}$ , find  $3 \odot (1 \odot 1)$

$$1 \odot 1 = \frac{2+4}{1} = 6$$

$$3 \odot 6 = \frac{2(3)+4(6)}{3(6)} = \frac{6+24}{18} = \frac{30}{18} = \frac{5}{3}$$

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11 points

5 points

0 points

### Problem 5

If the equation for the line  $y = 2x$  has a slope of 2, what would be the slope for the equation for the line  $23 + \frac{1}{2}y = 2x$ ?

$$\begin{array}{l}
 \frac{1}{2}y = 2x - 23 \\
 2 \left[ \frac{1}{2}y = 2x - 23 \right] \\
 y = 4x - 46 \\
 \uparrow \\
 \text{slope} = 4
 \end{array}$$

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