

2008 Middle School Math Festival**Team Round: Prealgebra**

Unless stated in the problem, answers will be written as an integer or an exact decimal (i.e. do not round). Any problems requiring a common fraction or mixed number for the answer will always require the fractional part to be in lowest terms.

1. Calculate LM where $L = \frac{5^2 + 5}{-15 + 5^2}$ and $M = 28 - (4)(3) + 2$.

2. Calculate $N - P$ where $N =$ solution to $9 = 7N - 12$ and $P =$ solution to $\frac{84}{P} = 12$

3. Calculate $A + B + C + D$ where

$A = - 4 + -5 $	$C = -6(-2)(-14)$
$B = 100 - 54 - 17$	$D = 72 \div (-9)$

4. Calculate $X - W$ where $W - 11 = -14$ and $-9X = -45$

5. Calculate $\frac{Z}{Y}$ where $15 - 4Y = -21$ and $\frac{Z}{-3} + 11 = 23$

6. Calculate EG where $E = 2(3 - (-4))^2$ and $G = -2^{-3}$.

7. Calculate $A + B$ where $A = \left(-\frac{9}{10}\right)\left(\frac{5}{12}\right)$ and $B = \frac{4}{5} \div \left(\frac{-8}{15}\right)$

Write the answer as a common fraction in lowest terms.

8. Calculate $\frac{D}{C}$ where $C = 3\frac{1}{4} + \left(\frac{-3}{4}\right)$ and $D = 4\frac{9}{10} - 1\frac{1}{10}$.

Write the answer as a common fraction in lowest terms.

Team Problem Solving Round (2008): Prealgebra

9. Calculate $\frac{\text{Mode} - \text{Range}}{\text{Mean} - \text{Median}}$ for the following data: {88, 85, 76, 94, 85, 97}.

10. Calculate $E + F$ where
 $E =$ next term in the sequence $\frac{1}{2}, \frac{5}{6}, 1\frac{1}{6}, \dots$
 $F =$ next term in the sequence $-\frac{4}{5}, 2, -5, 12\frac{1}{2}, \dots$

11. Calculate $\frac{B}{A}$ where $A =$ GCF of 112 and 216 $B =$ LCM of 2, 6, and 14.

12. Calculate $Y + Z$ where $\frac{10}{4.21} = \frac{7}{Y}$ and $Z = 61\%$ of 524.

13. Calculate $\frac{E}{F}$ where 36.45 is $E\%$ of 81 and 62% of F is 29.76.

Write the answer as a common fraction in lowest terms.

14. Calculate $A + B$ where $A =$ slope and $B =$ the y -intercept of $2x + 4y = -4$.
Write the answer as a common fraction in lowest terms.

$$y = \frac{1}{2}x + 6$$

15. Solve the following system of equations for x and y :

$$2x + y = 1$$

Calculate $x - y$.