

Cindy D. Wright Mathematics Tournament 2014
Eighth Grade Ciphering

1-1 Simplify: $\left(\frac{1}{2}\right)^2 + \left(\frac{5-3}{5}\right)^2 + \left(\frac{3+4}{10}\right)^2$

1-2 Solve: $-b - 4(2b - 3) + 5 = 8$

1-3 Find the smallest integer greater than one, which is a perfect square, a perfect cube and a perfect fourth power.

1-4 Solve: $3^{2n-1} \cdot 3^{5n} = (3^4)^{n+2}$

1-5 After an 8% tax, the total cost for a CD was \$17.82. What was the price of the CD?

2-1 Solve: $2h^2 = 5h$

2-2 Simplify: $3(5^2 - 1) - 10(3^2) \div 5$

2-3 Let a , b , and c be positive real numbers. If $ab = 48$, $bc = 96$, and $ac = 72$, what is value of abc ?

2-4 Simplify: $\left(\frac{c^3}{d^4}\right)^2 \left(\frac{-cd}{h}\right)^3$

2-5 In how many different ways can the letters in HUNGER be arranged?

3-1 Simplify: $-\frac{1}{2}(-84cd)\left(-\frac{1}{6c}\right), c \neq 0$

3-2 The sum of the ages of a family of six persons is 160. If their ages range from six to fifty, what was the sum of their ages four years ago?

3-3 Given $f(x) = 3x^2 - x$, find $f(2) - f(-2)$.

3-4 Solve: $2 - 3t = -\frac{1}{3}(5 - t) + 1$

3-5 Suppose a faucet leaks once every 1.5 seconds. There are about 80,000 drops in one gallon. How many gallons are wasted each year?

Answers

1-1 $\frac{9}{10}$ or 0.9

1-2 $1, b = 1, \text{ or } \{1\}$

1-3 4096

1-4 3

1-5 \$16.50

2-1 $\left(0, \frac{5}{2}\right)$ or $(0, 2.5)$

2-2 54

2-3 576

2-4 $-\frac{c^9}{d^5h^3}$

2-5 720

3-1 $-7d$

3-2 136

3-3 -4

3-4 $\frac{4}{5}$ or 0.8

3-5 262.8 or $262 \frac{4}{5}$ or $1314/5$

4-1 Solve: $\sqrt{7+\sqrt{81}}+3x=x+10$

4-2 Simplify: $(8^2-2^3)2-2(6-2)^2+12$

4-3 Find $x^{\frac{1}{3}}y^{-\frac{1}{2}}$ when $x=27$ and $y=36$

4-4 Evaluate the expression when $x=7$ and $y=\frac{1}{4}$. $\frac{xy}{x+y}$

4-5 The congruent sides of an isosceles triangle are 11 dm. If its height is 9 dm, what is the length of its other side?

EX1 Solve $-5|b|=-60$

EX2 What is $\frac{3}{5}\%$ of 500?

EX3 Simplify: $-[-(42-70)]$

4-1 $\{3\}; 3$ or $x=3$

4-2 92

4-3 $\frac{1}{2}$ or 0.5

4-4 $\frac{7}{29}$

4-5 $4\sqrt{10}$ or $4\sqrt{10}$ dm

EX1 12 and -12 or ± 12 or $\{-12, 12\}$

EX2 3

EX3 -28