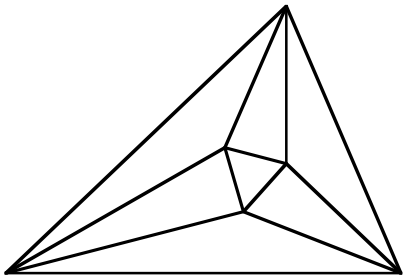
Meet 2 - Event A 2005-2006



Questions are worth 2-2-2-4-4 points respectively.
Remember your units.

_____1. $\left|{}^{-}4-3\right| = ?$

_____2. Write in exponent form: $3 \cdot 3 \cdot 5 \cdot 5 \cdot 5 \cdot 7$.

_____3. If 3.4 is at one end and 4.2 is the midpoint, what is the value on the other end of the line?

_____4. $(-2)^2 - 3^2 = ?$

_____5. $x! = 5040$. Solve for x.

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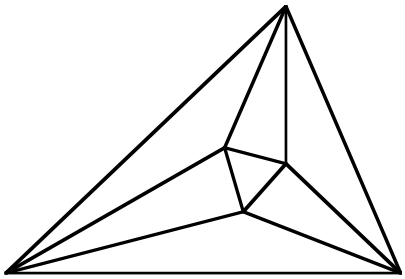
Meet 2 - Event A 2005-2006 Answers



Questions are worth 2-2-2-4-4 points respectively.
Remember your units.

7 1. $\left|{}^{-}7\right| = 7$

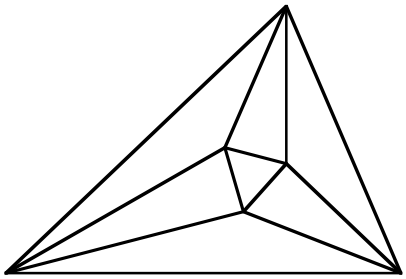
$3^2 \cdot 5^3 \cdot 7$ 2. $3^2 \cdot 5^3 \cdot 7$
or $3^2 5^3 7$

5 3. $4.2 - 3.4 = 0.8, \quad 4.2 + 0.8 = 5$

$^{-}5$ 4. $(-2)^2 - 3^2 = 4 - 9 = {}^{-}5$

7 5. $7! = 1 \cdot 2 \cdot 3 \cdot 4 \cdot 5 \cdot 6 \cdot 7$ so $7! = 5040$

Meet 2 - Event B 2005-2006



Questions are worth 2-2-2-4-4 points respectively.
Remember your units.

_____1. Which of these is the quotient of relatively prime numbers?

$$35 \quad \text{or} \quad 25 \quad \text{or} \quad \frac{15}{80} \quad \text{or} \quad \frac{20}{27} \quad \text{or} \quad 2\frac{1}{2}$$

_____2. Write in scientific notation: 205×10^{-8}

_____3. Which number is next in this sequence:

5, 2, 1, 2, 5, 10, ___

_____4. Find the smallest possible value for x if: $|3x - 4| = 8$.

_____5. Solve for x: $x^{-3} = 2^3$.

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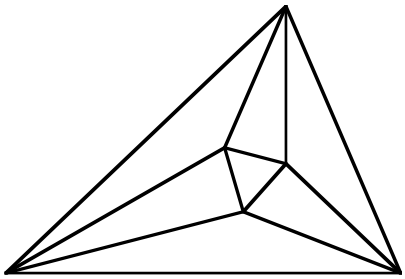
Meet 2 - Event B 2005-2006

Answers



Questions are worth 2-2-2-4-4 points respectively.
Remember your units.

$\frac{20}{27}$ 1. 35 is the product of relatively prime numbers. 25=5•5, and two fives have a 5 in common. 15 and 80 have a 5 in common. 20=2•2•5 and 27=3•3•3 have no common factors. 2 1/2 is a mixed number. In the Minnesota State High School Math League, answers are usually asked for as a "quotient of relatively prime numbers."

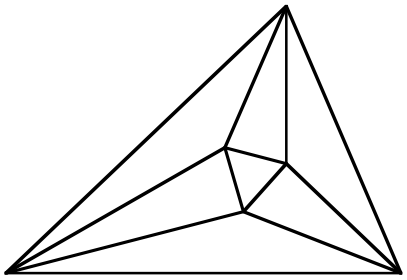
2.05×10^{-6} 2. $205\times10^{-8} = 0.00000205 = 2.05\times10^{-6}$

17 3. x^2+1 is generating this sequence starting at $x = {}^{-}2$.
$x = 4$ gives $16+1 = 17$

$-\frac{4}{3}$ 4. $3x-4=8$ $\quad 3x=12$ $\quad x=4$ or $3x-4={}^{-}8$ $\quad 3x={}^{-}4$ $\quad x=-\frac{4}{3}$ The smallest is $-\frac{4}{3}$

$\frac{1}{2}$ 5. $x^{-3}=\left(\frac{1}{x}\right)^3$ so $2^3=\left(\frac{1}{2}\right)^{-3}$

Meet 2 - Event C 2005-2006



Questions are worth 2-2-2-4-4 points respectively.
Remember your units.

_____1. Use absolute value to write the algebraic expression for x is 5 units from $^{-}8$.

_____2. Find the point 3/5 of the way from 15 to 5.

_____3. Write as a fraction with all positive exponents:

$$\frac{1}{2}a^2b^{-3}c^{-1}d^2$$

_____4. Solve for x if: $4^3 = 2^x$

_____5. Simplify: $\frac{(a-2)!}{a!}$:

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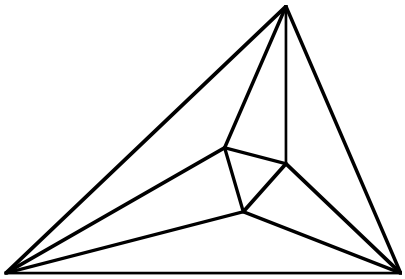
Meet 2 - Event C 2005-2006

Answers



Questions are worth 2-2-2-4-4 points respectively.
Remember your units.

$|x+8|=5$ 1. $|x-^{-}8|=5, \quad |x+8|=5$

9 2. $\frac{3}{5}\times 10 = 6,$ so $15-6=9$

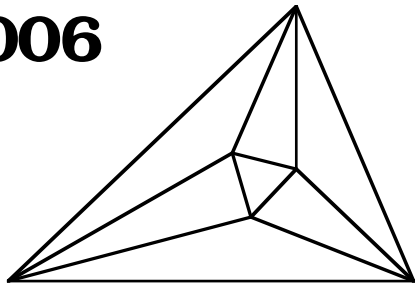
$\frac{a^2d^2}{2b^3c}$ 3.

6 4. $4=2^2$ so $\left(2^2\right)^3 = 2^6 = 2^x$

$\frac{1}{a(a-1)}$ 5. $\frac{\cancel{(a-2)(a-3)\ldots 2\cdot 1}}{a(a-1)\cancel{(a-2)(a-3)\ldots 2\cdot 1}} = \frac{1}{a(a-1)}$

or $\frac{1}{a^2-a}$

Meet 2 - Team Event 2005-2006



Questions are worth 4 points each.
Remember your units.

_____1. If 3.4 is on one end of a line and 1.2 is the midpoint, what number is on the other end of the line?

_____2. What is the coordinate of a point 1/3 of the way from -12 to 21?

_____3. Find both numbers that are three times as far from 3/4 as from 1/2.

_____4. Simplify: $\frac{8x^2y^{-3}}{24x^{-2}y}$

_____5. Simplify: $\frac{10!}{6!\,4!}$

_____6. $\left|^{-}4\right|+\left|^{-}5\right|-\left|^{-}3\right|-\left|2\right| = ?$

_____7. If the quotient of three times a number and four is the same as five less that the number, what is the number?

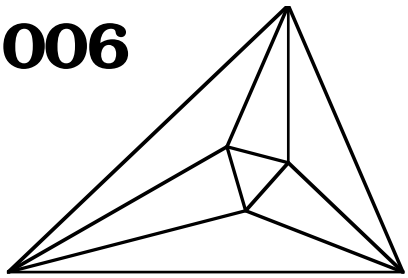
_____8. If twice a number is four more than the number decreased by seven, what is the number?

_____9. Write the prime factorization of 6!.

_____10. Simplify: $\frac{x!}{(x-2)!2!}$

 School_____

Meet 2 - Team Event 2005-2006
Answers



Questions are worth 4 points each.
Remember your units.

_____ 1. $3.4-1.2=2.2,\quad 1.2-2.2=^{-}1$

$^{-}1$

_____ 2. $21-^{-}12=33,\quad \frac{1}{3}\times 33=11,\quad ^{-}12+11=^{-}1$

$^{-}1$

_____ 3. (2 points each) Changing to 16th's puts 4 spaces between 1/2 and 3/4, so 9/16 is the answer for 3:1. Try 6:2 to find 6/16=3/8.

$\frac{9}{16}, \frac{3}{8}$

Algebra: $3\left|x-\frac{1}{2}\right|=\left|x-\frac{3}{4}\right|,\quad 3x-\frac{3}{2}=x-\frac{3}{4},\quad 2x=\frac{3}{4},\quad x=\frac{3}{8}$

or $3x-\frac{3}{2}=-x+\frac{3}{4},\quad 4x=\frac{9}{4},\quad x=\frac{9}{16}$

_____ 4. $\frac{8\bullet 1x^2\bullet x^2}{8\bullet 3y\bullet y^3}=\frac{x^4}{3y^4}$

$\frac{x^4}{3y^4}$

_____ 5. $\frac{10\bullet {}^{3}\cancel{9}\bullet\cancel{8}\bullet 7\bullet\cancel{6\bullet 5\bullet 4\bullet 3\bullet 2}}{\cancel{6\bullet 5\bullet 4\bullet 3\bullet 2}\bullet\cancel{4}\bullet\cancel{3}\bullet\cancel{2}}=210$

210

_____ 6. $4+5-3-2=4$

4

_____ 7. $\frac{3x}{4}=x-5,\quad 3x=4x-20,\quad -x=-20,\quad x=20$

20

_____ 8. $2x=4+x-7,\quad 2x=x-3,\quad x=^{-}3$

$^{-}3$

_____ 9. $6!=2\bullet 3\bullet 2^2\bullet 5\bullet 2\bullet 3=2^4\bullet 3^2\bullet 5$

$2^4\bullet 3^2\bullet 5$

_____ 10. $\frac{x(x-1)(x-2)\cancel{(x-3)\ldots.3\bullet 2}}{\cancel{(x-2)(x-3)\ldots.3\bullet 2\bullet 2\bullet 1}}=\frac{x(x-1)}{2}$

$\frac{x(x-1)}{2}$