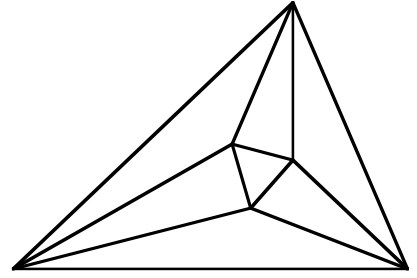


# Meet 5 - Event A 2010-2011

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

**NO CALCULATORS ALLOWED**



\_\_\_\_\_ 1. What is the median of these numbers: 2, 7, 5, 3, 9, 9, 2, 2?

\_\_\_\_\_ 2. What is the mean of the numbers in question 1?

\_\_\_\_\_ 3. Sandy decorated her holiday tree with 10 red, 15 silver, and 5 green glass ornaments. Her little brother, Roger, pulled the tree over and only one ornament broke. What is the probability it was red?

\_\_\_\_\_ 4. In problem 3, if Roger had broken two ornaments, what is the probability both were red? Answer as a quotient of relatively prime numbers.

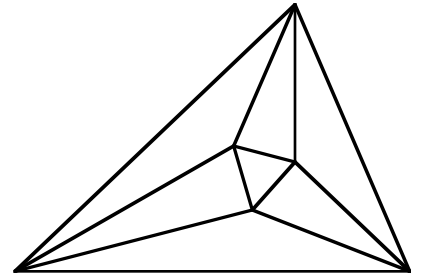
\_\_\_\_\_ 5. If the volume of a cube is  $64 \text{ in}^3$ , what is its surface area?

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# Meet 5 - Event A 2010-2011

## Answers

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



4 1. Reorder: 2, 2, 2, 3, 5, 7, 9, 9. The median is between 3 and 5.  $\frac{3+5}{2} = 4$

$4\frac{7}{8}$  or 4.875 2.  $\frac{2+7+5+3+9+9+2+2}{8} = \frac{39}{8} = 4\frac{7}{8}$

$\frac{1}{3}$  or  $0.\bar{3}$  or  $33\frac{1}{3}\%$  3. There are 30 ornaments and 10 are red, so  $\frac{10}{30} = \frac{1}{3}$

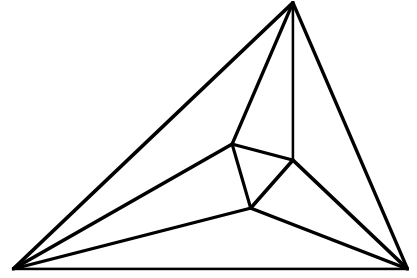
$\frac{3}{29}$  4. The first one was red AND the second one was red, so multiply. After one was broken, there were only 29 ornaments left.  
 $\frac{10}{30} \cdot \frac{9}{29} = \frac{3}{29}$

$96\text{in}^2$  5.  $V = 64 = 4 \cdot 4 \cdot 4$ , so edge=4in.  $SA = 6e^2 = 6 \cdot 4 \cdot 4 = 96\text{in}^2$

# Meet 5 - Event B 2010-2011

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

**NO CALCULATORS ALLOWED**



\_\_\_\_\_ 1. Write as a trinomial in decreasing order:  $(x-2)(4-x)$ .

\_\_\_\_\_ 2. Simplify  $\frac{x^2 + 2x - 24}{x - 4}$ .

\_\_\_\_\_ 3. What is the equation of the line through points  $(-4, 5)$  and  $(2, 5)$ ?

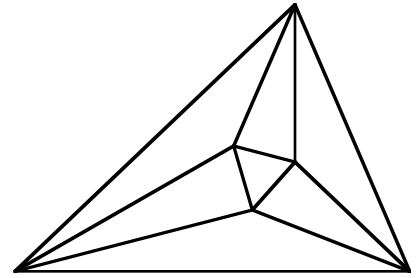
\_\_\_\_\_ 4. What point is the intersection of  $2x + 3y = 9$  and  $x - 5y = -15$ ?

\_\_\_\_\_ 5. If I would like a line with a slope of  $-\frac{1}{2}$  to intersect  $y = 2x - 5$ , where  $x = 2$ , what would be the equation of that line in slope-intercept form?

# Meet 5 - Event B 2010-2011

## Answers

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



$-x^2 + 6x - 8$  1.  $(x-2)(4-x) = 4x - x^2 - 8 + 2x = -x^2 + 6x - 8$

$x+6$  2.  $\frac{x^2 + 2x - 24}{x-4} = \frac{(x-4)(x+6)}{x-4} = x+6$  or  $x-4 \overline{)x^2 + 2x - 24}$

$$\begin{array}{r} x+6 \\ x-4 \overline{)x^2 + 2x - 24} \\ \underline{-(x^2 - 4x)} \phantom{0} \\ 6x - 24 \\ \underline{-(6x - 24)} \\ 0 \end{array}$$

$y = 5$  3. Since both  $y$  values are 5,  $y=5$ .

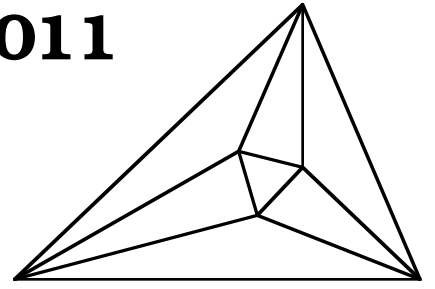
$(0, 3)$  4.  $2x + 3y = 9$       $2x + 3y = 9$       $x - 5(3) = -15$   
 $-2(x - 5y = -15)$       $\underline{-2x + 10y = 30}$       $x = 0$   
 $13y = 39$   
 $y = 3$

$y = -\frac{1}{2}x$   
or  $y = -0.5x$  5.  $y = 2x - 5$  so  $y = 2(2) - 5 = -1$  and the point of intersection is  $(2, -1)$   
 $y - (-1) = -\frac{1}{2}(x - 2)$ ,  $y + 1 = -\frac{1}{2}x + 1$ ,  $y = -\frac{1}{2}x$

# Meet 5 - Team Event 2010-2011

Questions are worth 4 points each.  
Remember your units.

**NO CALCULATORS ALLOWED**



- \_\_\_\_\_ 1. What number must be removed from 92, 52, 24, 17, and 34 to give a mean of 48.75?
- \_\_\_\_\_ 2. Factor completely:  $4x^2 - 2x - 30$ .
- \_\_\_\_\_ 3. Simplify and write in descending order:  $x^3 - 3(x + 5) + 5x^2 - x(4 - x^2) + 2$ .
- \_\_\_\_\_ 4. Find the slope of  $3x - 5y = 10$ .
- \_\_\_\_\_ 5. Find the slope of  $px + my + k = 0$ .
- \_\_\_\_\_ 6. Write as a trinomial in descending order:  $(3x - 1)(2x + 5)$ .
- \_\_\_\_\_ 7. If the surface area of a cube is  $54 \text{ in}^2$ , what is the volume?
- \_\_\_\_\_ 8. A square is formed completely in the first quadrant. Two corners are at  $(0, 3)$  and  $(5, 0)$ . What is the equation of the line through these two points in slope-intercept form?
- \_\_\_\_\_ 9. For problem 8, what is the equation of the edge line through  $(5, 0)$  that does not go through  $(0, 3)$ ?
- \_\_\_\_\_ 10. For problem 8, what are the other two corners?

\_\_\_\_\_ (two points each)

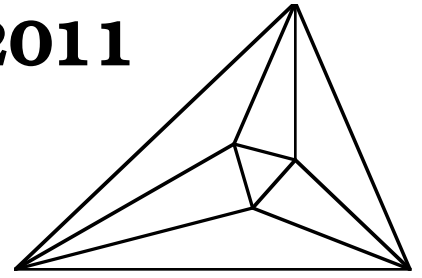
# Meet 5 - Team Event

# 2010-2011

## Answers

Questions are worth 4 points each.

Remember your units.



24 1.  $\frac{x}{4} = 48.75$ , so  $x = 195$ ,  $92 + 52 + 24 + 17 + 34 = 219$ ,  $219 - 195 = 24$

$\frac{2(x-3)(2x+5)}{\text{or } 2(2x+5)(x-3)}$  2.  $4x^2 - 2x - 30 = 2(2x^2 - x - 15) = 2(x-3)(2x+5)$

$\frac{2x^3 + 5x^2 - 7x - 13}{\text{or } 2x^3 + 5x^2 - 7x - 13}$  3.  $x^3 - 3x - 15 + 5x^2 - 4x + x^3 + 2 = 2x^3 - 7x - 13 + 5x^2 = 2x^3 + 5x^2 - 7x - 13$

$\frac{\frac{3}{5}}{\text{or } 0.6}$  4.  $3x - 5y = 10$ ,  $3x = 5y + 10$ ,  $3x - 10 = 5y$ ,  $y = \frac{3}{5}x - 2$

$-\frac{p}{m}$  5.  $px + my + k = 0$ ,  $my = -px - k$ ,  $y = -\frac{p}{m}x - \frac{k}{m}$

$\frac{6x^2 + 13x - 5}{\text{or } 6x^2 + 13x - 5}$  6.  $(3x-1)(2x+5) = 6x^2 + 15x - 2x - 5 = 6x^2 + 13x - 5$

$\frac{27 \text{ in}^3 \text{ or } 27 \text{ cu.in.}}{\text{or } 27 \text{ cu.in.}}$  7.  $S.A. = 6e^2 = 54$ ,  $e^2 = 9$ ,  $e = 3$ ,  $V = e^3 = 3^3 = 27 \text{ in}^3 \text{ or } 27 \text{ cu.in.}$

$\frac{y = -\frac{3}{5}x + 3}{\text{or } y = -\frac{3}{5}x + 3}$  8.  $m = \frac{3-0}{0-5} = -\frac{3}{5}$ ,  $b = 3$ ,  $y = -\frac{3}{5}x + 3$

$\frac{y = \frac{5}{3}x - \frac{25}{3}}{\text{or } y = \frac{5}{3}x - \frac{25}{3}}$  9. Slope of a line perpendicular to  $y = -\frac{3}{5}x + 3$  is  $+\frac{5}{3}$ , so  $y = \frac{5}{3}x + b$

Use  $(5, 0)$ .  $0 = \frac{5}{3}(5) + b$ ,  $b = -\frac{25}{3}$   
 $\frac{5}{3}$  and  $-\frac{25}{3}$  may be expressed as mixed numbers or repeating decimals.

(3, 8) 10. From  $(0, 3)$ , go over 3 and up 5 to  $(3, 8)$ . From  $(5, 0)$ , go over 3 and up 5 to  $(8, 5)$ .

(8, 5)  
(two points each)