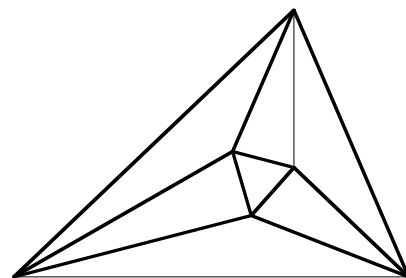


Meet 4 – Event A 2014-2015

Questions are worth 2-2-2-4-4 points respectively.

NO CALCULATORS ALLOWED



y = _____ 1. Solve the equation for y.

$$40x - 8y = 16$$

_____ 2. Simplify:

$$\sqrt{1,350}$$

_____ 3. Which number comes next?

1, 4, 13, 40, _____

a = _____ 4. The summation has a value of 67.5. What is *a*?

$$\sum_{n=5}^a \frac{n}{2} + 10$$

_____ 5A. The equation of a line is shown.

_____ 5B.
$$2\left(x - \frac{1}{2}\right) + \frac{2}{3}y = 4x$$

A) What is the slope of the line?

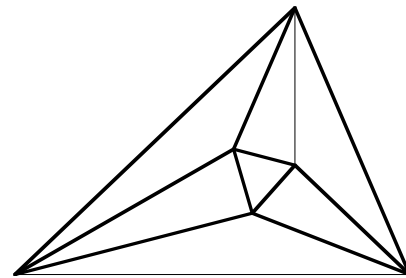
B) What is the y-intercept of the line? **Express your answer as an ordered pair.**

Name _____ School _____

Meet 4 – Event A 2014-2015

ANSWERS

Questions are worth 2-2-2-4-4 points respectively.



$y = 5x - 2^*$ 1. $40x - 8y = 16$
*also accept: $-8y = -40x + 16$
 $y = -2 + 5x$ $y = 5x - 2$

$15\sqrt{6}$ 2. $\sqrt{25 \times 9 \times 6} = 15\sqrt{6}$

121 3. The generating pattern for each term is to triple the previous term and add 1.
 $1 \times 3 + 1 = \underline{4}$; $4 \times 3 + 1 = \underline{13}$; $13 \times 3 + 1 = \underline{40}$; $40 \times 3 + 1 = \underline{121}$

$a = 9$ 4. $\sum_{n=5}^a \frac{n}{2} + 10 = 67.5$
 $(5/2 + 10) + (6/2 + 10) + (7/2 + 10) + (8/2 + 10) + (9/2 + 10)$
 $12.5 + 13 + 13.5 + 14 + 14.5 = 67.5$

3* 5A. $2\left(x - \frac{1}{2}\right) + \frac{2}{3}y = 4x$; $2x - 1 + \frac{2}{3}y = 4x$; $\frac{2}{3}y = 2x + 1$; $y = 3x + \frac{3}{2}$

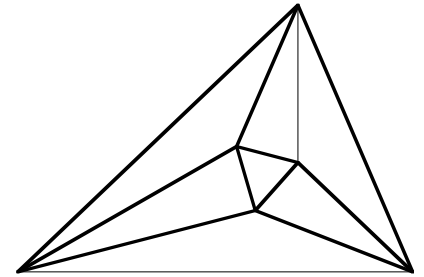
$\left(0, \frac{3}{2}\right)^*$ 5B.

*2 points each

Meet 4 – Event B 2014-2015

Questions are worth 2-2-2-4-4 points respectively.

NO CALCULATORS ALLOWED



_____ 1. The table shows a linear relationship. What is the missing value?

x	y
-2	5
0	9
4	?

_____ 2. Evaluate:

$$\sum_{n=1}^5 \frac{n^2}{4}$$

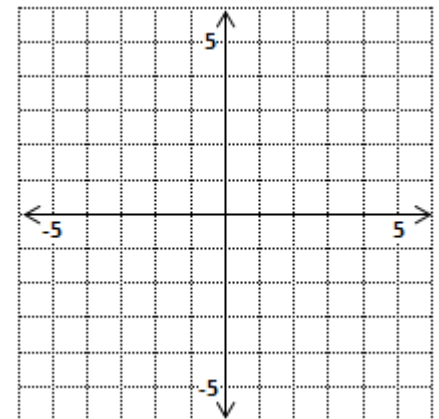
_____ 3. Simplify:

$$\sqrt{90x^4y^3z}$$

_____ 4. Graph the lines on the coordinate plane. Then state the ordered pair where the lines intersect.

$$y = \frac{2}{3}x - 3$$

$$y = -2x + 5$$



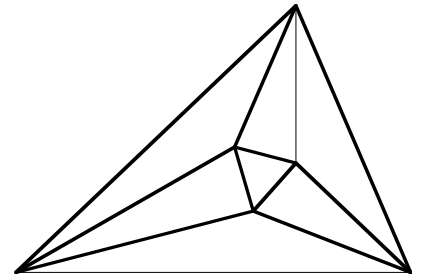
_____ cm^2 5. The area of Lake Calhoun in Minneapolis is approximately 1.62 square kilometers. A map of the lake has a scale of 1 centimeter : 200 meters. What is the area, in square centimeters, of Lake Calhoun on the map?

Name _____ School _____

Meet 4 – Event B 2014-2015

ANSWERS

Questions are worth 2-2-2-4-4 points respectively.

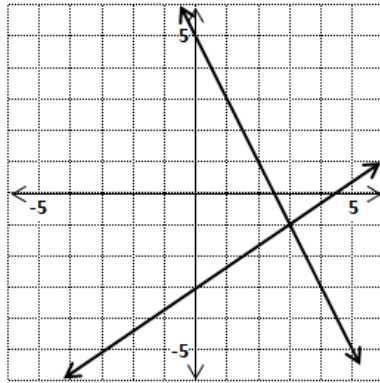


17 1. Rate of change: +4 in y / +2 in x = +2 in y / +1 in x
 To get from $x = 0$ to $x = 4$, there is a +4 change in x ; hence +8 in y .
 $9 + 8 = 17$

13.75* 2. $\sum_{n=1}^5 \frac{n^2}{4}$
 *also accept:
 $\frac{55}{4}, 13\frac{3}{4}$ $\frac{1^2}{4} + \frac{2^2}{4} + \frac{3^2}{4} + \frac{4^2}{4} + \frac{5^2}{4} = \frac{1}{4} + \frac{4}{4} + \frac{9}{4} + \frac{16}{4} + \frac{25}{4} = \frac{55}{4}$

$3x^2y\sqrt{10yz}$ 3. $\sqrt{(9 \times 10) \times x^4 \times (y^2 \times y) \times z} = 3x^2\sqrt{10yz}$

(3, -1) 4.

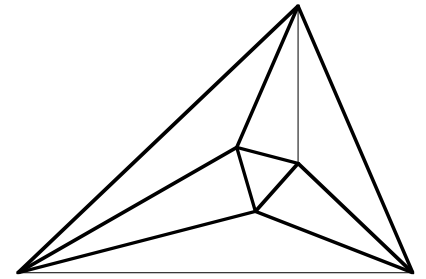


40.5 cm^2 5. $\frac{1.62 \text{ km}^2}{1 \text{ km}} \times \frac{1,000 \text{ m}}{1 \text{ km}} \times \frac{1,000 \text{ m}}{1 \text{ km}} \times \frac{1 \text{ cm}}{200 \text{ m}} \times \frac{1 \text{ cm}}{200 \text{ m}} = \frac{1,620,000}{40,000} \text{ cm}^2$
 $\frac{1,620,000}{40,000} \text{ cm}^2 = \frac{162}{4} \text{ cm}^2 = 40\frac{1}{2} \text{ cm}^2$

Meet 4 – Team Event 2014-2015

Questions are worth 4 points each.

NO CALCULATORS ALLOWED



_____ 1. Which number comes next?
 $\frac{1}{2}$, 2, $4\frac{1}{2}$, 8, _____

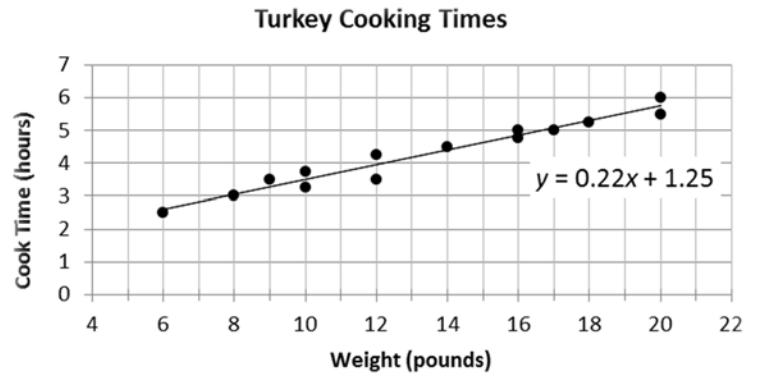
_____ 2. What is the y-intercept of the line that passes through (-7, -10) and (-11, 14)? **Express your answer as an ordered pair.**

_____ 3. Choose the pair of quantities that, when compared, would most likely show a negative relationship.

A. number of items in a vending machine, amount of money in the vending machine	C. number of cars in a mall parking lot, number of shoppers at the mall
B. number of inches of snowfall, number of school cancellations	D. number of books in students' backpacks, number of backpacks in students' lockers

_____ sq. units 4. What is the area of the triangle formed by the x-axis, the y-axis, and the line $y = -\frac{2}{3}x + 6$?

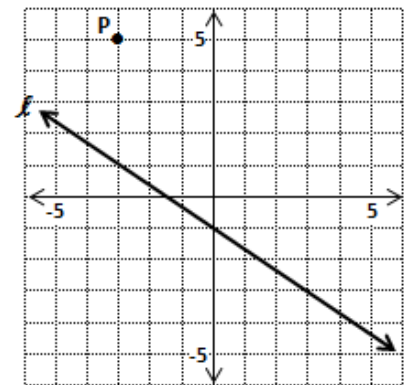
_____ hours 5. The scatterplot shows some recommended cooking times for turkeys of various weights. A line of best fit and the equation for the line are also shown. Based on this data, what is the estimated cook time for a 24-pound turkey? **Round your answer to the nearest tenth of an hour.**



$b =$ _____ 6. The summation has a value of 144. What is b ?

$$\sum_{n=2}^5 x^3 - b$$

$y =$ _____ 7. Line ℓ and point P are graphed on the coordinate plane. Write the equation of the line parallel to line ℓ that intersects point P. **Express your answer in slope-intercept form ($y = mx + b$).**



_____ ft³ 8. The volume of a model office building is 90 cubic inches. The scale of the model is 1 inch : 10 feet. What is the actual volume of the office building, in cubic feet? **Express your answer in scientific notation.**

$x =$ _____ 9. Solve:
 $32\sqrt{x} = x^3$

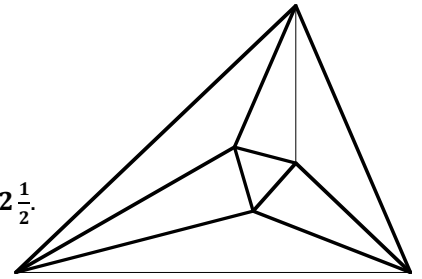
_____ 10. A horizontal line passes through the point (5, 3). Write the equation for the perpendicular line that passes through the same point.

Name _____ School _____

Meet 4 – Team Event 2014-2015

Questions are worth 4 points each.

ANSWERS



$12\frac{1}{2}$ 1. The generating pattern for each term is $\frac{1}{2}x^2$, thus $\frac{1}{2}(5)^2 = \frac{25}{2} = 12\frac{1}{2}$.
-OR- The difference between each successive term increases by 1.
(+1.5, +2.5, +3.5, **+4.5**) $\rightarrow 8 + 4.5 = 12.5$

(0, -52) 2. Slope: $\frac{14 - (-10)}{-11 - (-7)} = \frac{24}{-4} = -6$
 $y = -6x + b$; $-10 = (-6)(-7) + b$; $-10 = 42 + b$; **$-52 = b$**

A 3. As the number of items in a vending machine decreases, the amount of money in the machine increases.

27 sq. units 4. y-intercept: (0, **6**) \rightarrow height; x-intercept: $0 = -\frac{2}{3}x + 6$; $-6 = -\frac{2}{3}x$; $9 = x$; (**9**, 0) \rightarrow base
 $A = \frac{1}{2}bh$; $A = \frac{1}{2}(9)(6)$; **$A = 27$**

6.5 hours 5. $y = 0.22(24) + 1.25$; **$y = 6.53$**

$b = 20$ 6. $(2^3 - b) + (3^3 - b) + (4^3 - b) + (5^3 - b)$
 $(8 - b) + (27 - b) + (64 - b) + (125 - b)$
 $(8 + 27 + 64 + 125) - (4b) = 144$; $224 - 4b = 144$; $80 = 4b$; **$20 = b$**

$y = -\frac{2}{3}x + 3$ 7. Slope of ℓ : $-2/3$; P(-3, 5)
 $y = -\frac{2}{3}x + b$; $5 = -\frac{2}{3}(-3) + b$; $5 = 2 + b$; $3 = b$

$9 \times 10^4 \text{ ft}^3$ 8. $\frac{90 \text{ in}^3}{1 \text{ in}} \times \frac{10 \text{ ft}}{1 \text{ in}} \times \frac{10 \text{ ft}}{1 \text{ in}} \times \frac{10 \text{ ft}}{1 \text{ in}} = 90 \times 10^3 \text{ ft}^3 = 9 \times 10^4 \text{ ft}^3$

$x = 4$ 9. $(32\sqrt{x})^2 = (x^3)^2$
 $1,024x = x^6$
 $1,024 = x^5$

$x = 5$ 10.