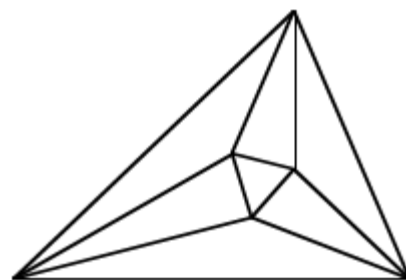# Meet 4 – Event A   2019-20

Questions are worth 2-2-2-4-4 points respectively.
No calculators allowed

_____**1.** Pete planted a tree and watched it grow for several months. Each month, he recorded the height of the tree, in inches. Pete used the equation $y = 3x + 16$ to represent the height of the tree (y), in inches, after x months of growth. What does the 3 represent in Pete's equation? Write the letter on the line.
  - **A.** The tree grows 3 inches every month.
  - **B.** The tree takes 3 months to grow an inch.
  - **C.** The tree was 3 inches tall when it was planted.
 - **D.** The tree was 3 months old when it was planted.

_____**2.**   Miranda will bake at least 4 pies for the bake sale. She is allowed to provide up to half of the total of 30 pies needed for the bake sale. Write a compound inequality to represent the number of pies (p) Miranda may bake.

_____**3.** An inequality is shown. How many whole numbers from 1 to 10 are solutions to the inequality?
$$4.5 + 1.8x < 18$$

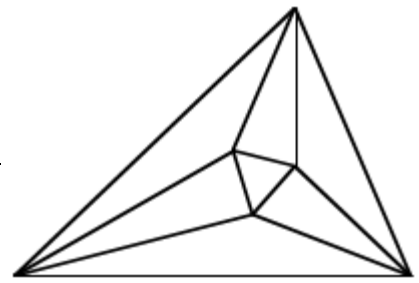$k =$ _____**4.** The summation has a value of 77. What is k?
$$\sum_{n=k}^{25} n - 11$$

_____ un.^{2} **5.** The graph of a line is shown. Point B is on the line. What is the area, in square units, of rectangle ABCD?
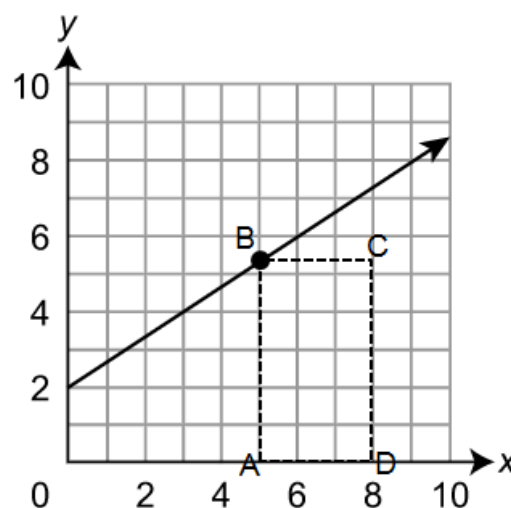
Name_____ School_____

Meet 4 – Event A   2019-20

Answers

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

_____A_____**1.** .

_____$4 \leq p \leq 15$_____**2.**   .

Also accept:
"$p \geq 4$ and $p \leq 15$"

_____7_____**3.** $4.5 + 1.8x < 18$
$1.8x < 13.5$
$x < 7.5$, so the whole numbers **1 – 7** satisfy the inequality

_____$k = 19$_____**4.** $(25 - 11) + (24 - 11) + (23 - 11) + (22 - 11) + (21 - 11) + (20 - 11) + (\mathbf{19} - 11) = 77$

_____16 un.^{2}_____**5.** In order to determine the height of the rectangle, we need to find the y-value of
point B. The equation of the line is $y = 2/3x + 2$. The x-value at point B is 5.
$y = 2/3(5) + 2 \rightarrow y = 10/3 + 2 \rightarrow y = 16/3$
So, the height of the rectangle is 16/3 units. The width of the rectangle is 3
units. The area of the rectangle is $(16/3)(3) = \mathbf{16\ square\ units}$.

Meet 4 – Event B   2019-20

Questions are worth 2-2-2-4-4 points respectively.
*No calculators allowed*
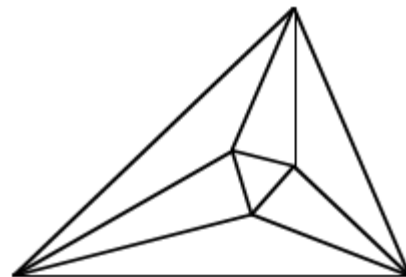
_____**1.** What is the remainder after dividing 450 by 7?

_____**2.** When Miriam was born, her godmother opened a bank account for her and deposited $3. Each year, Miriam's godmother doubles the amount of money in the account. How much money does Miriam have in her account after her 8th birthday?

_____**3.** A linear function has a y-intercept of $\left(0, 4\frac{1}{2}\right)$ and a slope of $\frac{1}{4}$.
What is the x-intercept of this function? Write your answer as an ordered pair.

_____**4.** What is the median of this data set?
$$\frac{1}{5},\ 0.2,\ \frac{3}{4},\ 0.6,\ 0.35,\ \frac{7}{10}$$

_____**5.** If $f(x) = x + |x|$, find the distance between points A (3, f(3)) and B (-3, f(-3)). Write your answer in simplified radical form.

Name_____ School_____

Meet 4 – Event B   2019-20
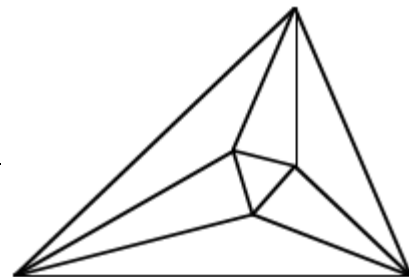
Answers

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

_____2_____**1.** $450 \div 7 = 64$ R**2**

Also accept:
2/7

_____$768_____ **2.**

Year	0	1	2	3	4	5	6	7	8
Amount ($)	3	6	12	24	48	96	192	384	**768**

___(-18, 0)___ **3.** Equation of line: $y = 1/4x + 4\frac{1}{2}$
x-intercept occurs when $y = 0$
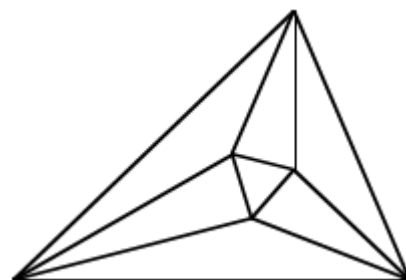$0 = 1/4x + 4\frac{1}{2}$ → $-4\frac{1}{2} = 1/4x$ → $x = -18$

_____0.475_____ **4.** $\frac{1}{5}$, 0.2, $\frac{3}{4}$, 0.6, 0.35, $\frac{7}{10}$ → 0.2, 0.2, 0.75, 0.6, 0.35, 0.7 →

Also accept:
19/40
0.2, 0.2, <u>0.35, 0.6</u>, 0.7, 0.75
$(0.6 + 0.35) / 2 = $ **0.475**

_____$6\sqrt{2}$_____ **5.** $f(3) = 3 + |3| = 3 + 3 = \underline{6}$; $f(-3) = -3 + |-3| = -3 + 3 = \underline{0}$
So, A(3, 6) and B(-3, 0).
This produces a right triangle with base 6 and height 6.
Therefore, $6^2 + 6^2 = d^2$; $36 + 36 = d^2$; $72 = d^2$; $d = \sqrt{72}$; $\boldsymbol{d = 6\sqrt{2}}$.

Meet 4 – Team Event 2019-20

Questions are worth 4 points each.
No calculators allowed

_____**1.** The first term of a geometric series is 4. The common ratio of the series is 3. What is the sum of the first 5 terms of the geometric series?

_____mi **2.** Kemba drives 6 miles directly northeast, then 9 miles directly southeast, then 34 miles directly southwest, then 45 miles directly northwest, and then finally 28 miles directly northeast. How many miles is Kemba from where he started?

_____**3.** What number comes next in the pattern?
10, 12, 15, 20, 27, 38, 51, . . .

_____in. **4.** A kite is shown. What is the perimeter of the kite?

_____**5.** The mean height of all the players on a soccer team is 65 inches. There are exactly 3 players on the team whose heights are less than 65 inches. What is the minimum possible number of players on the soccer team with heights greater than 65 inches?

_____un. **6.** Points A, B, and C are plotted on a coordinate plane.
- Point A is located at (m, n).
- Point B is located at ($m + 3$, $n - 2$).
- Point C is located at ($m - 1$, $n + 4$).

What is the distance, in units, from point B to point C? Write your answer in simplified radical form.
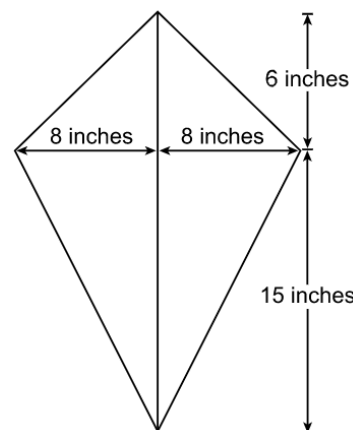
n = _____**7.** The table shows several values of a linear function. What is the value of n?

x	1	3	6	8
y	3.5	-1.5	-9	n

_____**8.** Abby sells holiday wreaths for a fundraiser. She sells small wreaths for $16 each and large wreaths for $24 each. She sells all 30 of the small wreaths. What is the minimum number of large wreaths Abby must sell to raise at least $1,500?

_____**9.** What is the mean absolute deviation of the data set?
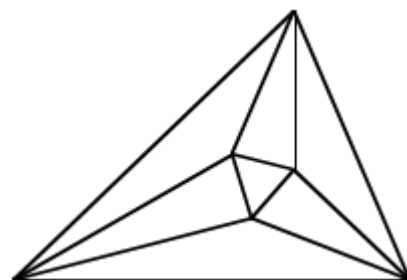3, 7, 8, 12, 12, 14, 15, 17

_____**10.** What is the equation of the line that is perpendicular to $y = -\frac{1}{3}x + 5$ and passes through (-4, -6)? Write your answer in slope-intercept form.

Name_____ School_____

Meet 4 – Team Event   2019-20

Answers

Questions are worth 4 points each.

484 **1.** $4 + 12 + 36 + 108 + 324 = $ **484**

36 mi **2.** This may be easier to think about if the compass is "tilted" such that NE = N (up), SE = E (right), SW = S (down), and NW = W (left). Therefore, Kemba walks 6 miles up, 9 miles right, 34 miles down, 45 miles left, and 28 miles up. His total up/down gain is (+6) + (-34) + (+28) = 0. His total left/right gain is (+9) + (-45) = -36. So, Kemba just needs to walk **36 miles** right to get back to where he started.

68 **3.** The pattern is increasing by consecutive prime numbers.
10 + $\underline{2}$ = 12; 12 + $\underline{3}$ = 15; 15 + $\underline{5}$ = 20; 20 + $\underline{7}$ = 27; 27 + $\underline{11}$ = 38; 38 + $\underline{13}$ = 51; 51 + $\underline{17}$ = **68**

54 in. **4.** Length of top left side, top right side: $\sqrt{8^2 + 6^2} = \sqrt{64 + 36} = \sqrt{100} = $ **10**
Length of bottom left side, bottom right side: $\sqrt{8^2 + 15^2} = \sqrt{64 + 225} = \sqrt{289} = $ **17**
10 + 10 + 17 + 17 = **54**

1 **5.** Technically, only 1 player on the team needs to have a height greater than 65 inches in order to balance out the mean. For instance, a possible (though unlikely) scenario for an 11-player soccer team could be 64, 64, 64, 65, 65, 65, 65, 65, 65, 65, 68. In this case, exactly 3 players are less than 65 inches, **exactly 1 player** is more than 65 inches, and the mean is still 65.

$2\sqrt{13}$ un. **6.** In relation to Point A, B is exactly 3 horizontal units to the right, and C is exactly 1 horizontal unit to the left. Therefore, Points B and C are exactly 4 horizontal units apart. Similarly, in relation to Point A, B is exactly 2 vertical units below, and C is exactly 4 vertical units above. Therefore, Points B and C are exactly 6 vertical units apart. This creates a right triangle with base 4 and height 6, so $d = \sqrt{4^2 + 6^2} = \sqrt{16 + 36} = \sqrt{52} = $ **$2\sqrt{13}$**.

$n = -14$ **7.** Use two ordered pairs to determine the slope: $\frac{3.5-(-1.5)}{1-3} = \frac{5}{-2} = -2.5$.
So, equation of function is $y = -2.5x + b$.
Use one ordered pair to determine b: $-9 = -2.5(6) + b \rightarrow b = 6$
So, equation of function is $y = -2.5x + 6$. Find y-value when $x = 8$: $y = -2.5(8) + 6 = $ **-14**

43 **8.** 16S + 24L ≥ 1500; 16(30) + 24L ≥ 1500
24L ≥ 1020; L ≥ 42.5; Abby must sell at least **43** large wreaths to raise $1500.

3.75 **9.** Mean: $(3 + 7 + 8 + 12 + 12 + 14 + 15 + 17) / 8 = 88/8 = \underline{11}$
Also accept:
3¾. 15/4
$(11 – 3) + (11 – 7) + (11 – 8) + (12 – 11) + (12 – 11) + (14 – 11) + (15 – 11) + (17 – 11) = $
$8 + 4 + 3 + 1 + 1 + 3 + 4 + 6 = 30$; 30/8 = **3.75**

$y = 3x + 6$ **10.** Slope of perpendicular line must be +3. So, $y = 3x + b$. Substitute ordered pair to find b. So, $-6 = 3(-4) + b$; $b = 6$. Therefore, **$y = 3x + 6$**.