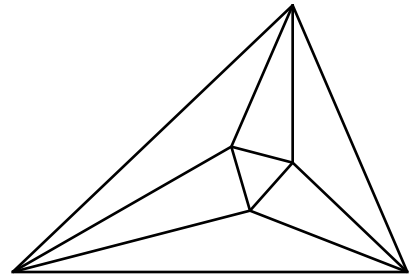
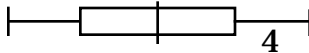


Meet 5 - Event A 2004-2005

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



- _____ 1. In Caden's class, everyone had a different score on the quiz and there were 4 scores in the upper whisker of the box and whisker plot. What is the smallest possible number of students in Caden's class?

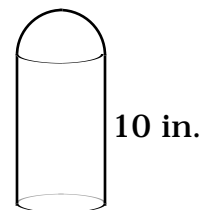


- _____ 2. For problem 1, what is the largest possible number of students in Caden's class?

- _____ 3. What is the mean of 0, 24, 32, 36, and 100?

- _____ 4. When the volume of a cube is increased by 20%, by what whole percent is the side increased?

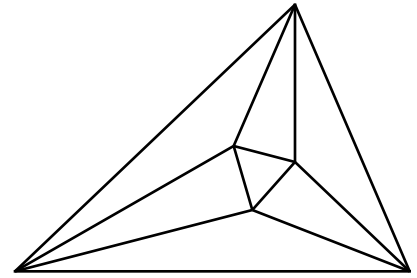
- _____ 5. A model of a silo has a hemisphere on top of a cylinder of diameter 6 inches. If the cylinder is 10 inches high, what is the volume of the silo, in terms of π ?



Meet 5 - Event A 2004-2005

Answers

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



16 1. If there are no scores at the median and quartile marks, there are 16 scores.

19 2. If there are scores on the median and quartile marks, there are 19.

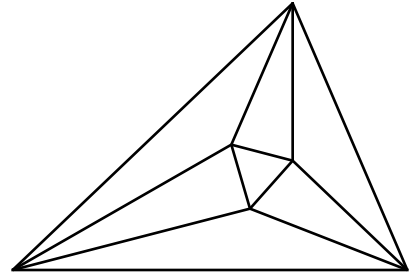
38.4 3. $\frac{24 + 32 + 36 + 100}{5} = \frac{192}{5} = 38.4$

6% 4. If the side = 1, the volume = $1^3 = 1$. When the volume = 1.2, $s^3 = 1.2$,
 $s = (1.2)^{\frac{1}{3}} = 1.063$, $0.06 \times 100 = 6\%$

$108\pi \text{ in}^3$ 5. $V_{\text{cyl}} = \pi 3^2(10) = 90\pi$
 $V_{\text{sphere}} = \frac{4}{3}\pi 3^3 = 36\pi$
 $V_{\text{silo}} = 90\pi + 18\pi = 108\pi$ cubic inches

Meet 5 - Event B 2004-2005

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



_____ 1. Write as a trinomial (3 terms): $(2x - 3)(3x + 5)$.

_____ 2. Find the numerical equivalent value for: $\sum_{k=4}^8 3k^2$.

_____ 3. There are 4 dark chocolate squares in the bowl with 12 milk chocolate squares. If Amy just reaches in and grabs one square, what is the probability it is a milk chocolate square?

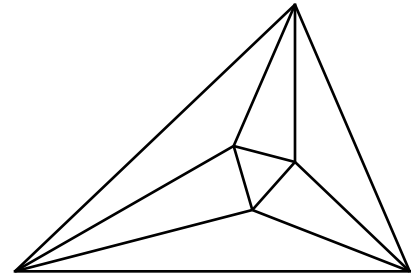
_____ 4. In problem 3, what is the probability that in grabbing one square at a time for four grabs, she gets all four dark chocolate squares, as a reduced fraction?

_____ 5. The mean of 6 numbers, two of which are equal, is 8. When the two equal numbers are removed, the mean is still 8. What is the sum of the two removed numbers?

Meet 5 - Event B 2004-2005

Answers

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



$6x^2 + x - 15$ 1. $(2x - 3)(3x + 5) = 6x^2 + 10x - 9x - 15 = 6x^2 + x - 15$

570 2. $3(4^2 + 5^2 + 6^2 + 7^2 + 8^2) = 3(190) = 570$

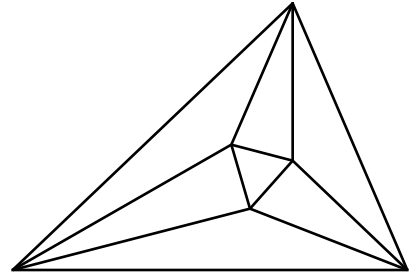
0.75 or $\frac{3}{4}$ 3. $\frac{12}{4+12} = \frac{12}{16} = \frac{3}{4}$

$\frac{1}{1820}$ 4. $P(\text{1st dark}) = \frac{4}{16}$, $P(\text{2nd dark}) = \frac{3}{15}$, $P(\text{3rd dark}) = \frac{2}{14}$, $P(\text{4th dark}) = \frac{1}{13}$
 $P(\text{all 4 dark}) = \frac{4}{16} \times \frac{3}{15} \times \frac{2}{14} \times \frac{1}{13} = \frac{24}{43680}$

16 5. $a + a + b + c + d + e = 8 \times 6 = 48$
 $b + c + d + e = 8 \times 4 = 32$
 $a + a + 32 = 48$
 $a + a = 16$

Meet 5 - Event C 2004-2005

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



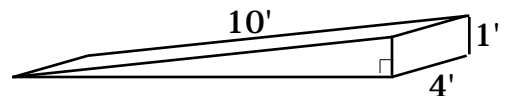
_____ 1. Find one numerical equivalent for: $\sum_{n=1}^4 (-1)^n$.

_____ 2. Find one numerical equivalent for: $\sum_{n=1}^4 -1^n$.

_____ 3. Simplify: $\frac{x^2 - 1}{x + 1}$.

_____ 4. When the volume of a cube is increase by 20%, by what whole percent is the side increase?

_____ 5. What is the volume of a wooden ramp if the slanted surface is 10 feet long and 4 feet wide and 1 foot high at the high end, to 3 significant figures?

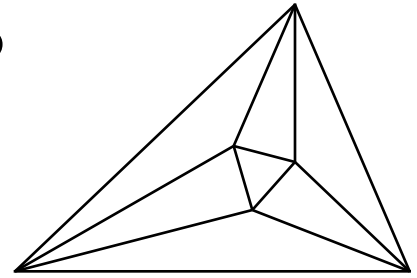


Name _____ School _____

Meet 5 - Event C 2004-2005

Answers

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



0 1. $\sum_{n=1}^4 (-1)^n = (-1)^1 + (-1)^2 + (-1)^3 + (-1)^4 = -1 + 1 - 1 + 1 = 0$

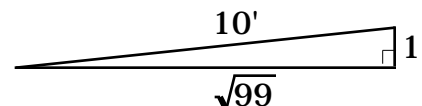
-4 2. $\sum_{n=1}^4 -1^n = -\sum_{n=1}^4 1^n = -(1^1 + 1^2 + 1^3 + 1^4) = -1 - 1 - 1 - 1 = -4$

x - 1 3. $\frac{x^2 - 1}{x + 1} = \frac{(x - 1)(x + 1)}{x + 1} = x - 1$ or

$$\begin{array}{r} x - 1 \\ x + 1 \overline{) x^2 + 0x - 1} \\ \underline{-(x^2 + 1x)} \\ -x - 1 \\ \underline{-x - 1} \\ 0 \end{array}$$

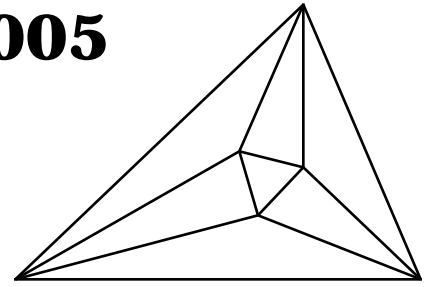
6% 4. If the side = 1, the volume = $1^3 = 1$. When the volume = 1.2, $s^3 = 1.2$,
 $s = (1.2)^{\frac{1}{3}} = 1.063$, $0.06 \times 100 = 6\%$

19.9 ft³ 5. $V = \frac{1}{2} \sqrt{99}(1)(4) = 2\sqrt{99} = 19.899$



Meet 5 - Team Event 2004-2005

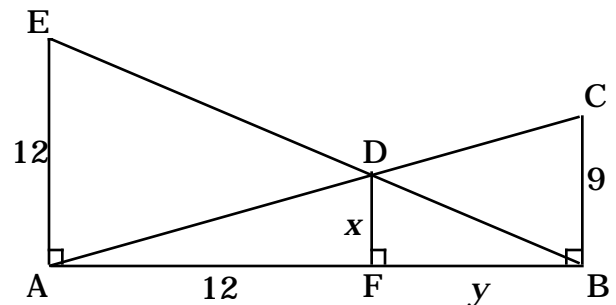
Questions are worth 4 points each.
Remember your units.



- _____ 1. At Best Middle School, Mia placed exactly in the middle among all the school mathletes. Sia placed lower, in 10th place, and Yang placed 16th. How many mathletes are at Best Middle School?
- _____ 2. If the 6.5% sales tax was \$4.51 on the table, what was the lowest possible price for the table?

- _____ 3. How many numbers not larger than 2005 are multiples of 5 or 3, but not 7?

- _____ 4. Given $AE=12$, $AF=12$, $BC=9$, find DF as a reduced improper fraction.

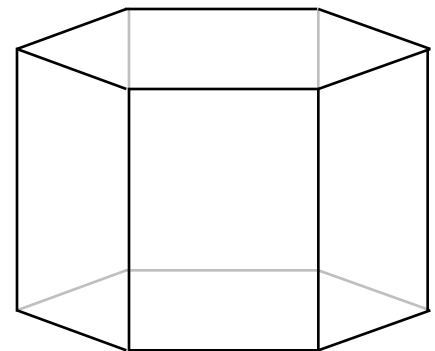


- $\sum_{k=0}$ _____ 5. Write in sigma notation, starting with $k=0$: $4+8+12$.

- $\sum_{k=2}$ _____ 6. Write in sigma notation, starting with $k=2$: $25, -125, 625, -3125$.

- _____ 7. Write as a trinomial: $3(x - 2)(2x + 7)$.

- _____ 8. Simplify: $3x^2 + 5x - (4x - 2x^2)$.



- _____ 9. A regular hexagonal prism has a side length of 5 cm and a height of 7 cm. What is the volume, to 3 significant digits?

- _____ 10. What is the median value of these numbers: $\sqrt{5}, 1.98, \pi, 0.72, \sqrt{3}$?

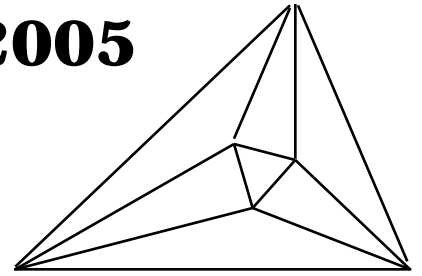
Meet 5 - Team Event

2004-2005

Answers

Questions are worth 4 points each.

Remember your units.



17 1. Mia=9th, Sia=10th, Yang=16th. There must be at least 16, but then 8 1/2 place would be the middle, so 17 makes 9th place the middle. 19 or more athletes makes the median place 10th or lower.

\$69.31 2. $\frac{4.505}{0.065} = 69.307 = \69.31

803 3. $2005=5(401)$, $2005=3(668)+1$, $2005=15(133)+2$
 $401=7(57)+1$, $668=7(95)+3$, $133=7(19)$
So $401+668-133-57-95+19=803$

$\frac{36}{7}$ 4. $\frac{12}{x} = \frac{12+y}{y}$, $12y = 12x + xy$, $y = \frac{12x}{12-x}$, $\frac{9}{x} = \frac{12+y}{12}$, $108 = 12x + xy$,
 $y = \frac{108-12x}{x}$, $\frac{12x}{12-x} = \frac{108-12x}{x}$, $12x^2 = (12-x)(108-12x)$,
 $12x^2 = 1296 - 252x + 12x^2$, $0 = 1296 - 252x$, $x = \frac{1296}{252} = \frac{36}{7}$

$\sum_{k=0}^3 4k$ 5. $\sum_{k=0}^3 4k = 0 + 4 + 8 + 12$

$\sum_{k=2}^5 (-5)^k$ 6. $\sum_{k=2}^5 (-5)^k = (-5)^2 + (-5)^3 + (-5)^4 + (-5)^5$

or $\sum_{k=2}^5 (-1)^k (5)^k$ Parentheses are required for both answers

$6x^2 + 9x - 42$ 7. $3(2x^2 + 7x - 4x - 14) = 3(2x^2 + 3x - 14) = 6x^2 + 9x - 42$

$5x^2 + x$ 8. $3x^2 + 5x - 4x + 2x^2 = 5x^2 + x$

455 cm^3 9. Hexagons are 6 equilateral triangles.
 $A_{\text{hexagon}} = 6(0.25)(5^2)\sqrt{3} = 64.9515$, $V = 64.9515 \times 7 = 454.66 \text{ cm}^3$

1.98 10. $\sqrt{5} = 2.24$, $\pi = 3.14$, $\sqrt{3} = 1.73$, in order: 0.72, 1.73, 1.98, 2.24, 3.14