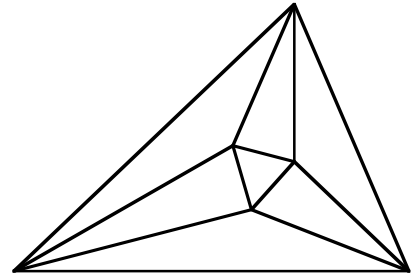


Meet 5 - Event A 2007-2008

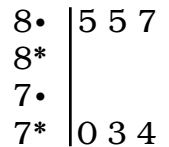
Questions are worth 2-2-2-4-4 points respectively.
Remember your units.



_____ 1. A cube has a side of 10 cm. What is its surface area?

_____ 2. A cube has a side of 10 cm. What is its volume?

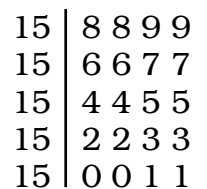
_____ 3. What is the mean value of the data in this stem and leaf plot?



_____ 4. The following data have a range of 8, mode of 23, and mean of 24. What two integers can be added to the list and keep the same range, mode and mean?

20, 22, 23, 23, 25, 27, 28

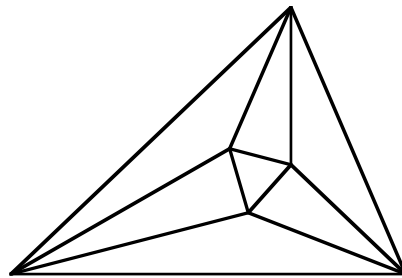
_____ 5. What is the mean value of the data in this stem and leaf plot?



Meet 5 - Event A 2007-2008

Answers

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



600 cm² 1. $6(10)(10) = 600 \text{ cm}^2$ or 600 sq. cm.

1000 cm³ 2. $(10)(10)(10) = 1000 \text{ cm}^3$ or 1000 cu. cm or 1000 cc

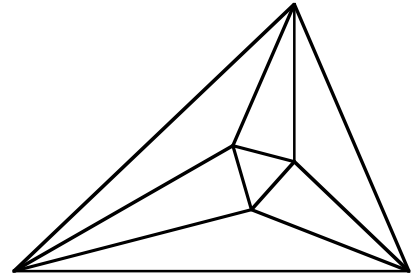
79 3. $\frac{85 + 85 + 87 + 70 + 73 + 74}{6} = \frac{474}{6} = 79$

23, 25 4. For nine integers to have a mean of 24, the last two integers must add up to 48. $\frac{168 + x}{9} = 24 \Rightarrow x = 48$. Only 23 and 25 being added will not change the mode, and will stay in the same range.

154.5 5. All 20 values are evenly distributed, so mean=median. $\frac{4 + 5}{2} = 4.5$

Meet 5 - Event B 2007-2008

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

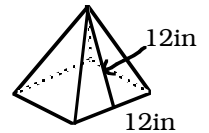


_____ 1. Evaluate: $\sum_{k=3}^6 2^k$

_____ 2. Simplify and write in decreasing order: $4 - (x + 2) - 3(4x + 1) + 2(7 - x)(x + 3)$

_____ 3. What is the volume of a box measuring 125 mm by 30 cm by 223 mm?

_____ 4. A square pyramid has a base side of 12 inches and a slant height of 12 inches. Find the volume, exactly.



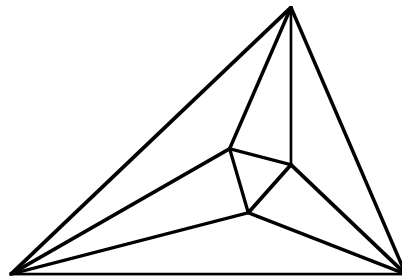
_____ 5. Lars has a 70% probability of making any one free throw. What is the probability that he misses two in a row, expressed as a percent?

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Meet 5 - Event B 2007-2008

Answers

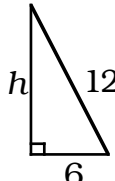
Questions are worth 2-2-2-4-4 points respectively.
Remember your units.



120 1. $2^3 + 2^4 + 2^5 + 2^6 = 8 + 16 + 32 + 64 = 120$

$-2x^2 - 5x + 41$ 2. $(7-x)(x+3) = 7x + 21 - x^2 - 3x = 4x + 21 - x^2$ so $4 - x - 2 - 12x - 3 + 8x + 42 - 2x^2 = -2x^2 - 5x + 41$

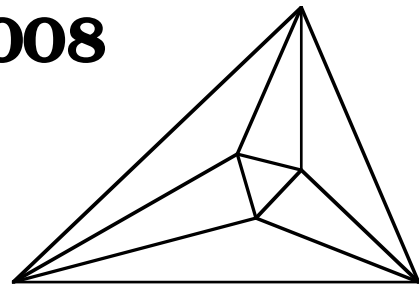
8362500 mm^3 3. $125 \text{ mm} \times 300 \text{ mm} \times 223 \text{ mm} = 8362500 \text{ mm}^3$
 or 8362.5 cm^3

$288\sqrt{3} \text{ in}^3$ 4.  $h^2 + 6^2 = 12^2 \Rightarrow h = 6\sqrt{3}$ $V = \frac{\cancel{12} \times 12 \times 6\sqrt{3}}{\cancel{3}} = 288\sqrt{3} \text{ in}^3$
 See Meet 4 Team Event Problem 9

9% 5. $100 - 70 = 30\%$ probability of missing. $0.30 \times 0.30 = 0.09 = 9\%$

Meet 5 - Team Event 2007-2008

Questions are worth 4 points each.
Remember your units.



_____ 1. A can is 3" in diameter and 4.5 " high. What is the volume of the can, to the nearest hundredth?

_____ 2. If twelve of the cans in problem 1 are arranged in three rows of four cans each and fit tightly inside a box, how much empty space is around the cans in the box, to the nearest tenth?

_____ 3. What is the quotient when you divide $x^2 - 9$ by $x - 3$?

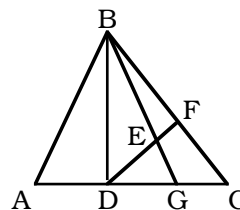
_____ 4. What is the product when you multiply $x^2 - 9$ by $x - 3$?

_____ 5. If a box has a volume of 200 in^3 and a length of 10 in and a height of 4 in, what is its surface area?

_____ % 6. If the length of each side of a rectangular prism is increased by 15%, by what percent is the volume increased, to the nearest percent?

_____ 7. Evaluate: $\sum_{k=0}^3 (-1)^k (3+k)^k$

_____ 8. How many triangles are in this figure?



_____ 9. Nancy made 12 chocolate, 12 marble, and 18 lemon cupcakes. With the same red frosting on top, no one could see which cupcakes were which flavor. What is the probability, as a reduced fraction, that Michael would get a lemon cupcake when he took one?

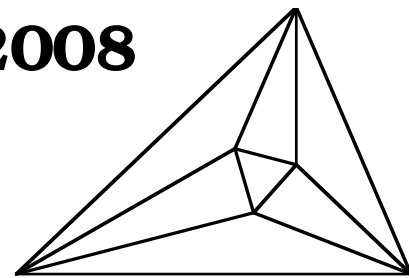
_____ 10. In problem 9, what is the probability Michael would get a chocolate or a marble cupcake, as a reduced fraction.

Meet 5 - Team Event

2007-2008

Answers

Questions are worth 4 points each.
Remember your units.



31.81 in³ 1. $d = 3"$, $r = 1.5"$, $V = \pi r^2 h = \pi(1.5)^2(4.5) = 31.81 \text{ in}^3$

104.3 in³ 2. $3 \times 3" = 9"$ wide, $4 \times 3" = 12"$ long, $4.5"$ high. $V_{\text{Box}} = 9 \times 12 \times 4.5 = 486$
 $V_{\text{Cans}} = 12(31.81) = 381.7$, $V_{\text{Empty Space}} = 486 - 381.7 = 104.3 \text{ in}^3$

$x+3$ 3. $\frac{x^2 - 9}{x - 3} = \frac{(x+3)(\cancel{x-3})}{(\cancel{x-3})} = x+3.$

$x^3 - 3x^2 - 9x + 27$ 4. $(x^2 - 9)(x - 3) = x^3 - 3x^2 - 9x + 27$

220 in² 5. $200 = l \times w \times h = 10 \times w \times 4 \Rightarrow w = 5$, $2(5 \times 10 + 4 \times 10 + 4 \times 5) = 220 \text{ in}^2$

52% 6. $1.15l \times 1.15w \times 1.15h = 1.52lwh$

-194 7. $(-1)^0(3)^0 + (-1)^1(4)^1 + (-1)^2(5)^2 + (-1)^3(6)^3 = 1 - 4 + 25 - 216 = -194$

11 8. ABC, ABD, BDC, DCF, DBF, DBE, BEF, DEG, ABG, DBG, BGC

$\frac{3}{7}$ 9. $12+12+18=42$ cupcakes $\frac{18}{42} = \frac{3}{7}$

$\frac{4}{7}$ 10. $\frac{12}{42} + \frac{12}{42} = \frac{24}{42} = \frac{4}{7}$