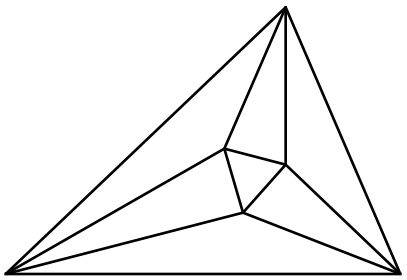
# Meet 1 - Event A  2002-2003



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

_____1. In this long division problem, what is the missing number?

$$\begin{array}{r} 38 \\ 45\overline{)1736} \\ \underline{135} \\ 386 \\ \underline{\ ?\ } \\ 26 \end{array}$$

_____2. What improper fraction does $38\frac{26}{45}$ represent?

_____3. Use a decimal point and these digits to create the smallest number that can be made under these conditions.
4, 8, 0, 1

_____4. $3n1n5n3$ is divisible by 9. Find all possible values for $n$.

_____5. How many perfect cubes are there between 1 and 100,000 that are multiples of 7?

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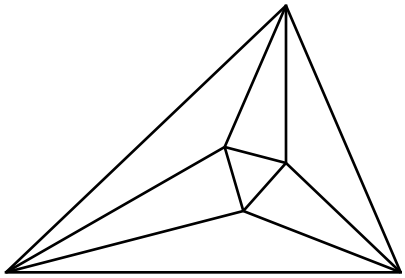
# Meet 1 - Event A 2002-2003

# Answers



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Remember your units.

360 1. Either 8 x 45 or 382 - 26

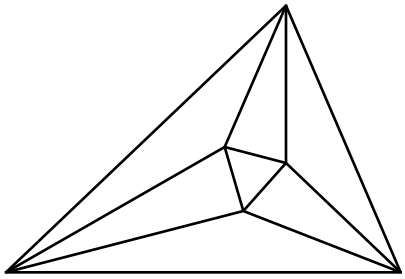
1736
45 2. See problem 1.

.0148 3. 0.0148 is an acceptable answer. The leading 0 is a courtesy, not a place holder.

2,5,8 4. $3+n+1+n+5+n+3=3n+12$
(must have all three numbers) Try values of $n$ to give you a number divisible by 9.
$n$=2, $n$=5, $n$=8

6 5. Only $7^3, (2\bullet 7)^3, (2\bullet 7)^3$, etc. are multiples of 7, so
$7^3 = 343, 14^3 = 2744, 21^3 = 9261, 28^3 = 21952, 35^3 = 42875, 42^3 = 74088$
$49^3 = 117649 > 100000$, so there are 6.

# Meet 1 - Event B 2002-2003



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

_____1. Simplify to reduced form:

$$\frac{4-^{-}17}{21}$$

_____2. Simplify to one improper fraction: $4-\frac{1}{\frac{2}{5}}$.

_____3. Johnny bought exactly 12 feet of nylon cord. He cut off pieces 2'8" long, 4'4" long, and 3'10"long. How long was the left over piece?

_____4. Consider any four consecutive numbers. If you add the middle two and subtract the lowest, what do you get?

a=_____5. Find the numbers $a$ and $b$ if $2\frac{3}{4}=\frac{5}{6}\times\frac{a}{b}-\frac{9}{10}$. $\frac{a}{b}$ is a fraction in lowest terms.

b=_____

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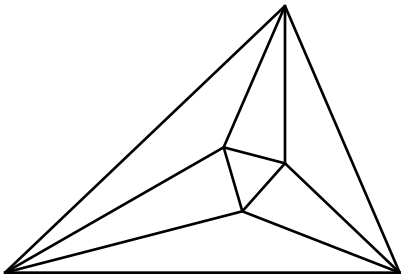
# Meet 1 - Event B 2002-2003

# Answers



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

1 1. $\frac{4+17}{21} = \frac{21}{21} = 1$

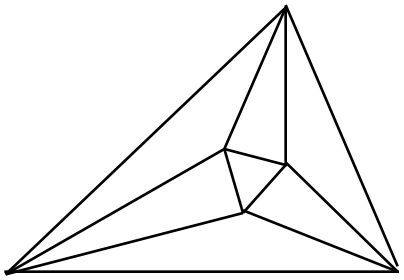
$\frac{3}{2}$ 2. $4 - \frac{5}{2} = \frac{3}{2}$ or $4 - \frac{1}{(2/5)} = 1.5 = \frac{3}{2}$

1'2" 3. 2'8" + 4'4" + 3'10" = 9'22" = 10'10", 12' - 10'10" = 1'2" or 14"

Highest 4. $n, n+1, n+2, n+3$
or 4th $(n+1)+(n+2)-n = n+3$
or last Example: 3, 4, 5, 6: 4+5-3=6
(Any specific number in the answer blank is not acceptable. The ability to generalize is being tested.)

a=219 5. $\frac{a}{b} = (2.75+0.9)1.2 = 4.38 = \frac{438}{100} = \frac{219}{50}$
b=50 or Use possible common denominators of 60, 120, 180, 240, 300, etc. to choose $b$ and find $a$. Using 300, $b$=50, 825=5$a$-270=219.

# Meet 1 - Event C 2002-2003



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

_____1. Solve for $x$: $-5.2x + 4.3 = -72.556$ .

_____2. What is the lowest common multiple of: $2a^2b, 5a^3b^2$, and $15ab^4$?

_____3. To change 14 feet 5 inches to centimeters, Frank used 2.5cm=1in. and Ralph used 2.54cm=1in. What was the difference in their answers?

_____4. If $ab = 21$ and $bc = 12$ what is $abc$?

_____5. How many perfect cubes are there between 1 and 100,000 that are multiples of 7?

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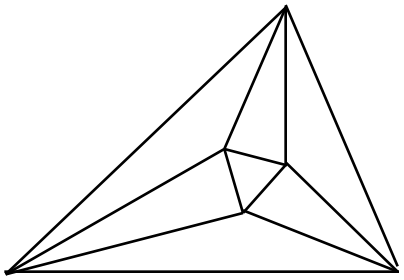
# Meet 1 - Event C 2002-2003

# Answers



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

14.78 1. $-5.2x = -72.556 - 4.3$

$x = -76.856 / -5.2$

$x = 14.78$

$30a^3b^4$ 2. $2 \bullet a \bullet a \bullet b$

$5 \bullet a \bullet a \bullet a \bullet b \bullet b$

$3 \bullet 5 \bullet a \bullet b \bullet b \bullet b \bullet b$

$\therefore 2 \bullet 3 \bullet 5 \bullet a \bullet a \bullet a \bullet b \bullet b \bullet b \bullet b$

6.92cm 3. 14'5"=168+5=173"

(1 pt for 6.92 without "cm") Frank: 173 x 2.5 = 432.5

Ralph: 173 x 2.54 = 439.42

439.42-432.5=6.92cm

734 4. $21 = 3 \bullet 7$

$12 = 3 \bullet 4$

$\therefore a = 7, b = 3, c = 4$

6 5. Only $7^3, (2 \bullet 7)^3, (2 \bullet 7)^3$, etc. are multiples of 7, so

$7^3 = 343, 14^3 = 2744, 21^3 = 9261, 28^3 = 21952, 35^3 = 42875, 42^3 = 74088$

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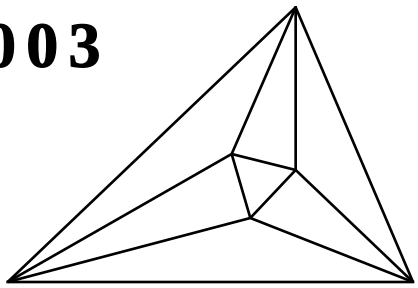
# Meet 1 - Team Event 2002-2003



Questions are worth 4 points each.
Remember your units.

_____1. When expanded as a decimal, 1/17 has a repetend (the repeating part of the decimal) of 16 digits. My calculator shows me only the first 10 digits. What is the last digit of the repetend?

_____2. What is the acute angle formed by the hands of a clock at 1:20 PM?

_____3. At Nisswa, the moon rise and set times on a 24 hour clock for each date are shown below:

| | March | |
|---|---|---|
| Date | Rise | Set |
| 25 | 14:36 | 04:58 |
| 26 | 15:59 | 05:32 |

For how long was the moon that rose at 14:36 above the horizon?

_____4. What is the sum of $a+b+c$?

$$\frac{56}{12} = a + \frac{1}{b + \frac{1}{c}}$$

_____5. How may factors does 60 have?

_____6. Janice picks 2 cups of berries. Alice picks 1 1/2 cups. Sara picks 3 cups. Which is the smallest container that will hold all the berries? Pint, quart, half-gallon, or gallon?

_____7. Factor 259896 into primes to the appropriate power.

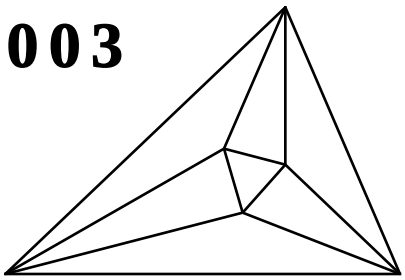
_____8. Jack bought 3 shirts at $14.98 each, chinos at $18.95, and a belt for $5.15. How much change did he receive from a $100 bill? (No sales tax.)

_____9. Mr. Goodfruit planted 40 apple trees, 30 pear trees, and 35 peach trees in his orchard. He bought 3 bee hives to have enough bees to pollinate his trees. What fraction of his orchard was planted in pear trees, in lowest terms?

_____10. Write as one fraction: $\frac{a}{2} + \frac{7}{b}$.

School_____

# Meet 1 - Team Event 2002-2003 Answers



Questions are worth 4 points each.
Remember your units.

7 1. 1/17=0.05882352941176470588.... Divide or note that the remainder must be 1 to start the repetend over again, so the last number subtracted must end in a 9. 17 x 7 = 119.

80° 2. At 20 after the hour, the minute hand is 120° from straight up. At 1PM the hour hand is 30° from straight up, so at 1:20PM the hour hand is 30°+30x(20/60)=40° from straight up. 120°-40°=80°.

14hr 56min 3. The moon first set at 04:58 on the 25th, then rose at 14:36, then set at 05:32 on the 26th, then rose at 15:59, so from 14:36 to 05:32 is 29:32-14:36=28:92-14:36=14:56

7 4. $\frac{56}{12} = 4 + \frac{8}{12} = 4 + \frac{1}{\frac{12}{8}} = 4 + \frac{1}{1 + \frac{4}{8}} = 4 + \frac{1}{1 + \frac{1}{2}}$

$4 + 1 + 2 = 7$

12 5. $60 = 2^2 \bullet 3^1 \bullet 5^1$ so $(2+1)(1+1)(1+1) = 12$ 1,2,3,4,5,6,10,12,15,20,30,60

half-gallon 6. 2 cups=1 pint, 2 pints=1 quart=4 cups $\therefore 6\frac{1}{2}$ cups would fit in a half-gallon container.

$2^3 \bullet 3 \bullet 7^2 \bullet 13 \bullet 17$ 7.

$30.96 8. $3(14.98) + 18.95 + 5.15 = 69.04$, $100 - 69.04 = 30.96$

2/7 9. 40+30+35=105, so 30/105=2/7

$\frac{ab+14}{2b}$ 10. $\frac{ab}{2b} + \frac{14}{2b} = \frac{ab+14}{2b}$ or $\frac{14+ab}{2b}$