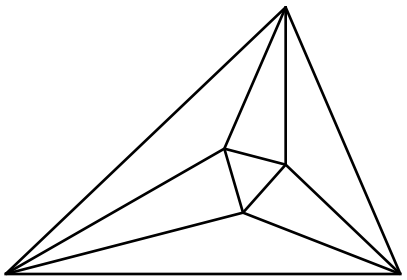
# Meet 1 - Event A 2004-2005



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

_____1. George bought a used car for $600 and sold it to Jerry for $800. He later bought it back for $900 and sold it to Sue for $1000. What was his total profit?

_____2. At a party, Sally wore red and white, Joan wore blue and white, Peggy wore red and blue, Amy wore red, and Yia wore blue and yellow. What fraction of the girls at the party wore blue?

a._____3. Consider $n$=1549.2481

a. Write $n$ accurate to one decimal place.

b._____ b. Write $n$ accurate to three significant digits.

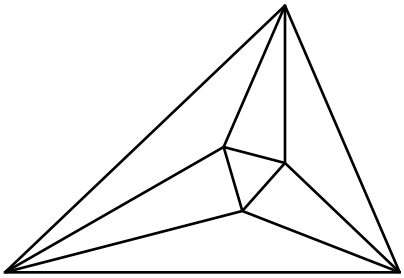
_____4. Find the improper fraction for:

$$5 - \frac{1}{2 - \frac{1}{52}}$$

_____5. At Walleye Lake Resort, 8 people rented a boat. If 4 more had shared the cost, everyone would have paid $2 less. What was the rental cost of the boat?

Name_____School_____

# Meet 1 - Event A 2004-2005 Answers



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

\$300 1. He made \$200 on the sale to Jerry and \$100 on the sale to Sue.

$\frac{3}{5}$ 2. There were five girls and three wore blue.

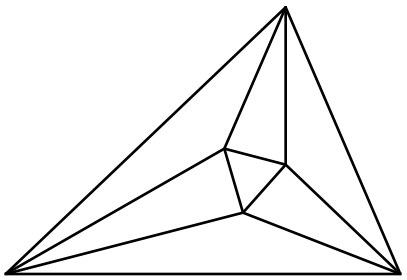
a. 1549.2 3.

b. 1550

$\frac{463}{103}$ 4. $5 - \frac{1}{\frac{103}{52}} = 5 - \frac{52}{103} = \frac{515 - 52}{103} = \frac{463}{103}$

\$48 5. The rental cost must be a multiple of 8 and 12, so check \$24, \$48, etc.
$\frac{24}{8} = 3, \frac{24}{12} = 4$ so \$1 less; $\frac{48}{8} = 6, \frac{48}{12} = 4$ so \$2 less

# Meet 1 - Event B 2004-2005



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

a=_____ b=_____

1. Find the smallest positive integers for $a$ and $b$ if:

$$\frac{a}{b} \div 2\frac{1}{3} = \frac{4}{5}$$

_____2. Using 24 hour clock notation, on October 13th, the moon rose at 14:45 and set 8 hours and 33 minutes later. Then 16 hours and 4 minutes later it rose and 9 hours and 3 minutes later it set. After 15 hours and 26 minutes it rose again, and set after 9 hours and 41 minutes. In the following table, fill in the correct value for space $a$.

October, 2002

| Date | Rise | Set |
|---|---|---|
| 13 | 14:45 | *a* |
| 14 | *b* | *c* |
| 15 | *d* | *e* |

_____3. Fill in the time for space $e$ on the table above.

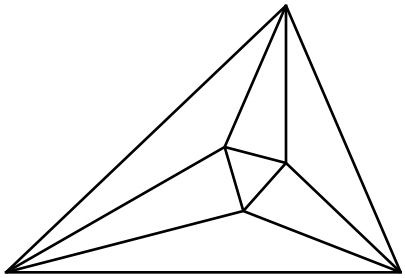
_____4. The digits 1, 2, 3, 5, 6, and 9 are each used once to make three two digit prime numbers. What is the sum of those numbers?

_____5. Find the smallest positive number that has exactly nine positive divisors.

Name_____School_____

# Meet 1 - Event B 2004-2005

# Answers



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

a= 28 1.

b= 15

$$\frac{a}{b} \div \frac{7}{3} = \frac{4}{5} \Rightarrow \frac{a}{b} = \frac{4}{5} \times \frac{7}{3} = \frac{28}{15}$$

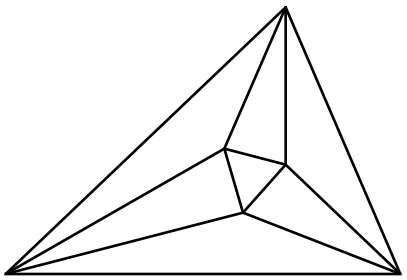
23:18 2. $14:45 + 8:33 = 22:78 = 23:18$

00:25 3. 23:18+16:04=39:22-24=15:22=*b*, rise on the 14th
15:22+9:03=24:25-24=00:25 which is now on the 15th so *e*=00:25
00:25+15:26=15:51=*d*, rise on the 15th
There is no value for *c* because the moon did not set on Oct. 14, 2002.
15:51+9:41=24:92=01:32 which is on Oct. 16, 2002

143 4. The tens digits must be 2, 5, and 6 because two digit primes can't end in 2, 5, or 6. The primes are 23 or 29, 53 or 59, and 61.
23+59+61=143, 29+53+61=143

36 5. Since 9 is odd, the number must be a perfect square. 36 is the smallest one that works. $1\times36$, $2\times18$, $3\times12$, $4\times9$, and $6\times6$

# Meet 1 - Event C 2004-2005



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

_____1. Solve fo $x$: $x + 15.68 = 3.9$

_____2. Given $a$, $b$, and $c$ are integers and $ab = {}^{-}12$, $b > c$, and $ac = 15$, what is $abc$?

_____3. Solve for $x$: $3.4(6.1 - x) - 2.9 = 40.45$.

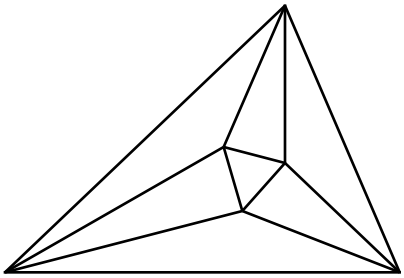
_____4. A two digit number, $ab$, has its digits reversed to give a two digit number, $ba$, What is the largest positive value of $ab - ba$?

_____5. At Walleye Lake Resort, 8 people rented a boat. If 4 more had shared the cost, everyone would have paid $2 less. What was the rental cost of the boat?

Name_____School_____

# Meet 1 - Event C 2004-2005

# Answers



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

$-11.78$ 1. $3.9 - 15.68 = -11.78$

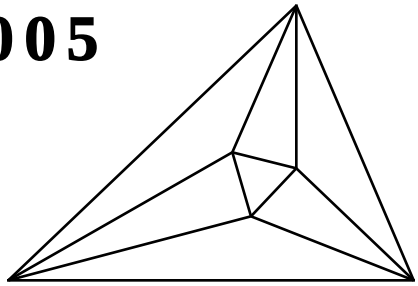
60 2. $-12 = -1 \bullet 2 \bullet 2 \bullet 3$, $15 = 3 \bullet 5$ or $-3 \bullet -5$
Therefore $a = -3, b = 4, c = -5$ or $a = 3, b = -4, c = 5$
Since $b > c$ is given, the first set $(4 > -5)$ is correct so $abc = 60$

$-6.65$ 3. $20.74 - 3.4x - 2.9 = 40.45$
$17.84 - 3.4x = 40.45$
$-3.4x = 22.61$
$x = -6.65$

72 4. $(a \times 10 + b) - (b \times 10 + a) = 10a + b - 10b - a = 9a - 9b = 9(a - b)$, so the difference is divisible by 9. The greatest value for $a - b$ is $9 - 1 = 8$, so 72 is the answer. $91 - 19 = 72$.

\$48 5. The rental cost must be a multiple of 8 and 12, so check \$24, \$48, etc.
$\frac{24}{8} = 3, \frac{24}{12} = 4$ so \$1 less; $\frac{48}{8} = 6, \frac{48}{12} = 4$ so \$2 less

# Meet 1 - Team Event 2004-2005



Questions are worth 4 points each.
Remember your units.

_____1. When a two-digit number is multiplied by the difference of its digits, the result is 80. What is the two-digit number?

_____2. Let *a*, *b*, and *c* be distinct digits. Find three digit numbers *abc* and *cba* that are both divisible by 7.

_____3. How many minutes is it before 6:00 if 50 minutes ago it was four times as many minutes past 3:00?

_____4. How many numbers not larger than 60 are multiples of 3 or 4, but not 5?

_____5. When two whole numbers are added, the sum is 51. When they are multiplied the product is 560. What is the difference between the numbers?

_____6. Given *a*, *b*, and *c* are integers and $ab = -20$, $bc = 10$. If *b* is greater than *a*, and *b* is greater than *c*, what are the two possible answers for *abc*?

_____7. How many factors does 19500 have?

_____8. Xee bought 30 calculators at $61 each. She sold 28 of them for $89.95 and 2 on sale for $79.95. What was her profit?

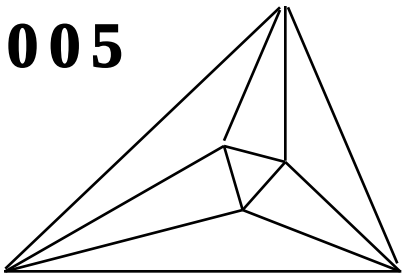
_____9. Forty is five eighths of what number?

_____10. If the sum of two consecutive odd numbers is 72, what is their product?

 School_____

# Meet 1 - Team Event 2004-2005

# Answers



Questions are worth 4 points each.
Remember your units.

16 1. $80 = 1\times80,\ 2\times40,\ 4\times20,\ 5\times16,\ 8\times10$
$5 = 6-1$, so 16 must be the number.

259 and 952 or 168 and 861 2. If $abc$ and $cba$ are both divisible by 7, their difference is also.
$100a+10b+c-(100c+10b+a) = 99a-99c = 99(a-c)$. $(a-c)$ must be divisible by 7, so $a$=9, $c$=2, or $a$=8, $c$=1. 952 and 259 work (Experiment to find the 5.) Also 861 and 168.

26 3. 180 minutes from 3:00 to 6:00. $4x = 180-(50+x) \Rightarrow x = 26$

24 4. $60 = 3(20)$ so 20 multiples of 3. $60 = 4(15)$ so 15 multiples of 4.
$60 = 5(12)$ so 5 multiples of 12. Every 5th multiple of 3 is divisible by 5, so subtract 4. Every 5th multiple of 4 is divisible by 5, so subtract 3. Every 5th multiple of 12 is divisible by 5, so add back 1.
$20+15-5-4-3+1 = 24$

19 5. From 560, one number ends in 5 or 0, $560 = 2^4\bullet5\bullet7$ so guess:
$16+35 = 51$ so $35-16 = 19$

$^-40$, $^-20$ 2 points each 6. $ab = {}^-20 = {}^-1\bullet4\bullet5 = {}^-1\bullet2\bullet10$, $bc = 10 = 2\bullet5 = {}^-2\bullet{}^-5 = 1\bullet10 = {}^-1\bullet{}^-10$
There are 6 possibilities: 1. $a={}^-4$ $b=5$ $c=2$, 2. $a=4$ $b={}^-5$ $c={}^-2$, 3. $a={}^-10$ $b=2$ $c=5$, 4. $a=10$ $b={}^-2$ $c={}^-5$, 5. $a={}^-2$ $b=10$ $c=1$, 6. $a=2$ $b={}^-10$ $c={}^-1$. $b>a$ eliminates 2, 4, and 6. $b>c$ eliminates 3. So $^-4\bullet5\bullet2 = {}^-40$ or $^-2\bullet10\bullet1 = {}^-20$

48 7. $19500 = 2^2\bullet3\bullet5^3\bullet13$ so $(2+1)(1+1)(3+1)(1+1) = 48$ Explanation: you could choose $2^0$, $2^1$, or $2^2$ as three possible factors of 19500 using 2.

$848.50 ($ required) 8. Cost$= 30\times\$61 = \$1830$, Income$= (28\times\$89.95)+(2\times\$79.95) = \$2678.5$
Profit$= \$2678.50-\$1830 = \$848.50$

64 9. $40 = \frac{5}{8}x$, $x = 40\times\frac{8}{5} = 64$

1295 10. 72/2=36, so the numbers are 35 and 37.