

NAME \_\_\_\_\_

SCHOOL \_\_\_\_\_

**2010 Middle School Math Festival****Individual Round: Team 9**1. Find the sum:  $\frac{2}{5} + \frac{1}{9}$ 

A.  $\frac{1}{15}$

B.  $\frac{23}{45}$

C.  $\frac{3}{14}$

D.  $\frac{19}{45}$

2. Find the GCF of 36, 60, and 96.

A. 12

B. 15

C. 14

D. 1340

3. What is the area of a square with a side of length  $4\frac{2}{5}$  inches?

A.  $19\frac{9}{25}$  in<sup>2</sup>

B.  $1\frac{19}{25}$  in<sup>2</sup>

C.  $3\frac{13}{25}$  in<sup>2</sup>

D.  $\frac{11}{25}$  in<sup>2</sup>

4. Solve:  $-9p - 17 = 10$ 

A. -3

B. 16

C. 18

D. -16

5. A dozen apples cost \$2.55. At this rate, how much would 8 apples cost?

A. \$20.40

B. \$3.83

C. \$0.21

D. \$1.70

6. What linear function rule models the following data:

<b>Input (x)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Output (y)</b>	<b>9</b>	<b>12</b>	<b>15</b>	<b>18</b>	<b>21</b>

A.  $y = 4 + 5x$

B.  $y = 3 + 6x$

C.  $y = 5 + 4x$

D.  $y = 6 + 3x$

7. Which angle is the supplement of  $55.1^\circ$ ?

A.  $124.9^\circ$

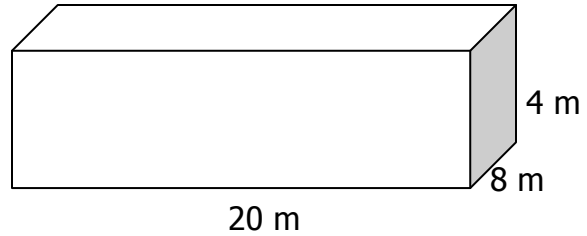
B.  $119.9^\circ$

C.  $49.9^\circ$

D.  $39.9^\circ$

Individual Round (2010): Team 9

8. The Drama Club plans to paint the outside walls of the box that will serve as a second level to their stage. That means the top and bottom do not need to be painted. What is the total surface area which Needs to be painted?



- A.  $544 \text{ m}^2$       B.  $272 \text{ m}^2$       C.  $224 \text{ m}^2$       D.  $112 \text{ m}^2$

9. Find the mean and median of the data set. Round to the nearest tenth, if necessary.  
Altitude of lakes (in feet):  $\{-12, -9, -14, -39, -49, -49, -18, -43\}$

- A. Mean = -28.5    B. Mean = -29.1    C. Mean = -49    D. Mean = -29.1  
Median = -29.1    Median = -49    Median = -29.1    Median = -28.5

10. A number cube is rolled 37 times and the results are listed in the table below. What is the experimental probability of rolling a number less than 4, written as a fraction in simplest terms?

<b>Number</b>	1	2	3	4	5	6
<b>Times Rolled</b>	2	6	7	8	9	5

- A.  $\frac{1}{2}$       B.  $\frac{15}{37}$       C.  $\frac{23}{37}$       D.  $\frac{1}{6}$

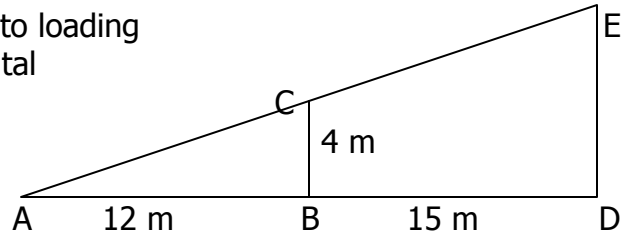
11. Simplify  $(m^2 - m - 4) + (m - 5)$

- A.  $m^2 - 2m + 9$     B.  $m^2 + 2m - 9$     C.  $m^2 - 2m - 9$     D.  $m^2 - 9$

12. Evaluate the expression  $\frac{(a - b)^2}{ab}$  for  $a = 1$  and  $b = 4$ .

- A.  $3\frac{1}{3}$       B.  $2\frac{1}{2}$       C.  $1\frac{4}{5}$       D.  $2\frac{1}{4}$

13. The ramp to the right is used to move to loading docks at different levels. When the horizontal distance  $AB$  is 12 meters, the height of the loading dock,  $BC$ , is 4 meters. What is height of the loading dock  $DE$ ?



- A. 12 m                      B. 5 m                      C. 9 m                      D. 15 m

14. What is the equation for a line, in point-slope form, with a slope of  $-\frac{3}{5}$  passing through point  $(-5, 5)$ ?

- A.  $y + 5 = -\frac{3}{5}(x - 5)$                       C.  $y + 5 = -\frac{3}{5}(x + 5)$   
 B.  $y - 5 = -\frac{3}{5}(x - 5)$                       D.  $y - 5 = -\frac{3}{5}(x + 5)$

15. Classify the triangle with angles measuring  $69^\circ$ ,  $42^\circ$ , and  $69^\circ$ .

- A. Right                      B. Equilateral                      C. Isoceles, acute                      D. isosceles, obtuse

16. Calculate the total surface area of a cylinder with a radius of 5 inches and a height of 11.95 inches. Round your answer to the nearest whole number.

- A.  $532 \text{ in}^2$                       B.  $454 \text{ in}^2$                       C.  $375 \text{ in}^2$                       D.  $188 \text{ in}^2$

17. Find the mode and median of the data in the stem-and-leaf plot below.

- |   |       |                  |
|---|-------|------------------|
| 5 | 4 4 8 | A. no mode; 73   |
| 6 | 0 3 5 | B. 63; 73.5      |
| 7 | 3 4 6 | C. 54; 73        |
| 8 | 2 5   | D. no mode; 73.5 |
| 9 | 7 8   |                  |

Individual Round (2010): Team 9

18. How many different ways can 4 people stand shoulder-to-shoulder in a line?

- A. 6 ways                      B. 24 ways                      C. 12 ways                      D. 10 ways

19. What is the product expressed in scientific notation?       $(9 \times 10^4)(8 \times 10^6)$

- A.  $7.2 \times 10^{25}$                       B.  $1.7 \times 10^{11}$                       C.  $7.2 \times 10^{11}$                       D.  $72 \times 10^{10}$

20. Simplify       $(5m^2 - 4m - 1) - (-4m^2 - 4)$

- A.  $-9m^2 - 8m - 1$       B.  $9m^2 - 4m + 3$       C.  $m^2 - 4m - 3$       D.  $9m^2 + 4m - 3$