

WMML
Meet #5
February 6, 2018
Arithmetic and Number Theory

Name _____

School _____

1) What is the sum of all of the integers from -17 to +20 inclusive?

1) _____

2) Evaluate the following expression if $x = -\frac{3}{2}$.

$$4(x+1)^3 - 2(x+2)^2 - 8(x+1) + 6$$

2) _____

3) How many integers between 999 and 10,000 (NOT inclusive) do not contain the digit 4?

3) _____

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Meet #5
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Algebra I

Name _____

School _____

1) If 8 is 40% of x and 12 is 80% of y , then y is what percent of x ?

1) _____

2) Suppose that c is directly proportional to the cube of d and inversely proportional to the square of e . If $c = 32$ when $d = 4$ and $e = 6$, determine the value of c when $d = 6$ and $e = 12$.

2) _____

3) There are 2820 tractors in Ruralville. The ratio of the number of medium tractors to the number of small tractors is 7:5 and the ratio of small tractors to the number of large tractors is 8:9. How many large tractors are there in Ruralville?

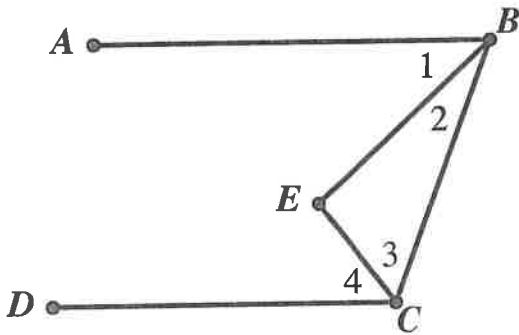
3) _____

- 1) The measure of each interior angle of a regular polygon is 90° less than eight times the measure of each exterior angle. Each side of the polygon is 6 inches. What is the perimeter of the polygon?

1) _____

- 2) $\overline{AB} \parallel \overline{CD}$, $m\angle 1 = 2m\angle 2$, $m\angle 3 = 3m\angle 4$, and $m\angle E = 80^\circ$. Determine the $m\angle ABC$. (Drawing is not to scale.)

2) _____



- 3) If the diagonal of a cube measures $8\sqrt{3}$ units, what is the surface area of the cube?

3) _____

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Algebra II

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School _____

1) Suppose that -8 is one of the solutions of $5x^2 + 34x = k$. Determine the value of k .

1) _____

2) A jar contains 5 quarters and 3 dimes. If Jake shakes out two coins at random, what is the probability that the total value of the coins is 35 cents?

2) _____

3) If $(10^{12} + 25)^2 - (10^{12} - 25)^2 = 10^n$, determine the value of n .

3) _____

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Trigonometry and Complex Numbers

Name _____

School _____

1) What is the sign of the sine of -868° ?

1) _____

2) The sides of a triangle are in the ratio 4:6:8. Determine the cosine of the smallest angle.

2) _____

3) Determine the smallest positive solution of
 $8 \sin x \cos^5 x - 8 \sin^5 x \cos x = 1$

3) _____

WMML
Meet #5
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Precalculus

Name _____

School _____

- 1) A combination lock has a dial with integers from 0 to 10 inclusive. The lock has a unique three-integer code that opens the lock. If the integers cannot be repeated, how many different codes exist for the lock? 1) _____

- 2) For the lock described above, what would be a more mathematically accurate name? Explain your answer. 2) _____

- 3) There are five multiple choice questions on a math quiz and each question has four choices. If Eliel has not studied for the quiz and answers the questions randomly, what is the probability that he receives a grade **greater than or equal** to 60%? 3) _____