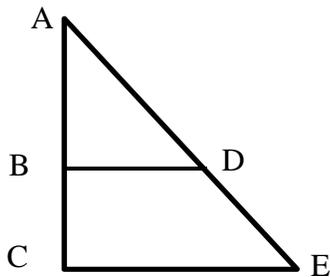


Muscle Shoals Middle School Math Tournament

November 2, 2013

Pre-Algebra Written Test

- Simplify: $3 [4 - 8 + 4^2 (2 + 5)]$
 - 252
 - 520
 - 108
 - 324
- One coin is randomly selected from a jar containing 30 pennies, 15 nickels, 4 dimes, and 14 quarters. Find the odds that a value less than \$0.25 is selected.
 - $\frac{7}{2}$
 - $\frac{7}{9}$
 - $\frac{2}{7}$
 - $\frac{10}{21}$
- A regular heptagon measures $3x + 2$ units on each side. What is the perimeter in simplest form?
 - $24x + 16$ units
 - $18x + 12$ units
 - $21x + 14$ units
 - $27x + 18$ units
- Find the area of quadrilateral BDEC. $\overline{AC} \cong \overline{BD}$, $\overline{AC} \cong \overline{CE}$ B is the midpoint of \overline{AC} , D is the midpoint of \overline{AE} . $AC = 24$ cm, $CE = 10$ cm.



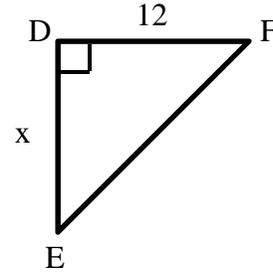
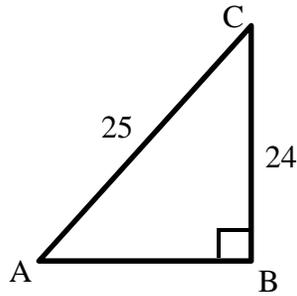
- 120 cm^2
 - 92.5 cm^2
 - 50 cm^2
 - 90 cm^2
- Which number set(s) does -0.825 belong?
 - Integers, rational numbers, and real numbers
 - Rational numbers and real numbers
 - Irrational numbers and real numbers
 - Whole numbers, integers, rational numbers, and real numbers
 - The equation of a line is $y = \frac{3}{5}x - 4$. What is the slope of a line parallel to this line?
 - $-\frac{3}{5}$
 - $\frac{3}{5}$
 - $-\frac{5}{3}$
 - -4

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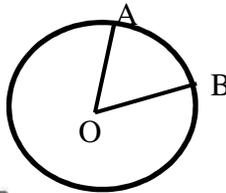
Pre-Algebra Written Test

7. $ABC \sim EDF$. Find the value of x .



- a. 41.1 b. 3.5 c. 11.5 d. 14

8. The $m\angle AOB = 80^\circ$ and $OB = 3$ in. Find the area of sector AOB in circle O.



- a. 6.28 in^2 b. 2.09 in^2 c. 28.26 in^2 d. 4.19 in^2

9. The sum of the lengths of the edges of a cube is 48 inches. What is the volume of the cube?

- a. 9 inches^3 b. 8 inches^3 c. 64 inches^3 d. 54 inches^3

10. One of the acute angles in a right triangle measure 6 degrees less than three times the other acute angle. What is the measure of the smaller acute angle?

- a. 44° b. 14° c. 34° d. 24°

11. What property of addition is best illustrated by $\blacksquare + (\blacksquare + \blacksquare) = (\blacksquare + \blacksquare) + \blacksquare$

- a. Symmetric b. Associative c. Transitive d. Commutative

12. Simplify completely: $\sqrt{\sqrt{225} + \sqrt[3]{729} + 8^0} = ?$

- a. 12 b. 3 c. 6 d. 8

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Pre-Algebra Written Test

13. A penny is tossed, then a quarter is tossed, then one card is drawn from a standard deck. What is the probability that "Head-Head-Diamond" is the result?

a. $\frac{1}{8}$

b. $\frac{1}{16}$

c. $\frac{1}{64}$

d. $\frac{1}{52}$

14. How many positive integral divisions does 1036 have?

a. 10

b. 11

c. 12

d. more than 12

15. What is the measure of each interior angle of a regular decagon?

a. 122°

b. 144°

c. 180°

d. 100°

16. Express as a reduced fraction $\frac{A}{B}$ and then find $A + B$. $2 + \frac{1}{1 + \frac{1}{1 + \frac{1}{8}}}$

a. 44

b. 26

c. 60

d. 56

17. What is half of the product of the mean, median, mode, and range of this set of data?
4, 10, 6, 8, 16, 2, 6, 10, 4, 4, 7

a. 672

b. 588

c. 31

d. 1176

18. 43.5 square kilometers equals how many square millimeters? Express the answer in scientific notation.

a. 43.5×10^{12}

b. 4.35×10^{13}

c. 4.35×10^7

d. 4.35×10^{-7}

19. How many different 9 letter arrangements are there for the letters of the word PERIMETER?

a. 181,440

b. 30,240

c. 60,480

d. 362,880

20. Find the volume of a cylinder with the radius on the base of 3 cm and height is 12 cm.

a. $(72) \text{ cm}^3$

b. $(36) \text{ cm}^3$

c. $(108) \text{ cm}^3$

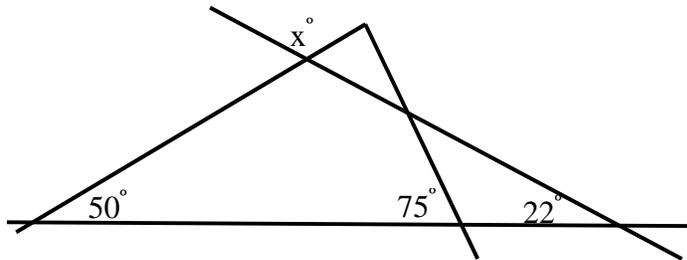
d. $(432) \text{ cm}^3$

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21. Given the diagram of four lines, find the value of x .



- a. 75° b. 55° c. 72° d. 158°

22. If y varies directly with x , if $y=14$ when $x= 32$, find y when $x=8$.

- a. 3.5 b. 14 c. 7 d. 18

23. The Jones' want to deposit fertilizer-rich topsoil 3-feet deep over their entire yard. Their yard is rectangular and measures 360 feet by 125 feet. If topsoil sells for \$2.50 per cubic yard, how much will the Jones' spend on topsoil?

- a. \$37,500 b. \$337,500 c. \$12,500 d. \$112,500

24. For every two hamburgers Will buys at the regular price, he gets a bag of chips for fifteen cents. If he spends \$8.85 for six hamburgers, what is the regular price of a hamburger?

- a. \$1.43 b. 1.48 c. 1.37 d. 1.40

25. Simplify: $\frac{(2x^2y)^3(-3xy^{-2})}{6xy^2}$

- a. $\frac{x}{4y^2}$ b. $\frac{-x^3}{y}$ c. $\frac{-4x^6}{y}$ d. $\frac{8x^6}{y^2}$

TB1 Solve the equation: $-\frac{5}{2} = \frac{3}{4}x + \frac{1}{2}$

TB2 Solve the equation: $|4t - 8| = 20$

TB3 Simplify: $\sqrt{147} + \sqrt{75} - 2\sqrt{54}$