CHILES MINI MU

DECEMBER 15, 2012

ELEMENTARY - PETTING ZOO

SOLUTIONS

1. Admission = 2($5.50) + 2($2.75) = $11.00 + $5.50 = $16.50 C

2. cost after discount = $11 − (.2 × 11) = $11 − $2.20 = $8.80 B

3. (1+14) ÷ 3 × 4 = 15 ÷ 3 × 4 = 5 × 4 = 20 B

4. Area = length × width = 15 feet × 12 feet = 180 square feet C

5. perimeter = 2(length) + 2(width) = 2(15) + 2(12) = 54 feet D

6. $A = \pi r^2 = \pi(3)^2 =$ 9π square feet C

7. 

97 is only divisible by 1 and 97, therefore, it is prime. D

8. $13\frac{1}{2}$ feet = $\frac{27}{2}$ feet; 3 feet = 1 yard

$\frac{27}{2}$ feet × $\frac{1 \text{ yard}}{3 \text{ feet}} = \frac{27}{2} \times \frac{1}{3}$ yard = $\frac{9}{2}$ yards A

9. $\frac{2 \text{ miles}}{1 \text{ hour}} = \frac{\frac{1}{3} \text{ mile}}{x \text{ hours}}$ → cross multiply to get $2x = \frac{1}{3} \rightarrow x = \frac{1}{6}$

Therefore, you have $\frac{1}{6}$ of an hour to catch Benny. $\frac{1}{6}$ of an hour is $\frac{1}{6}$(60 minutes), which is 10 minutes. A

10. $V = \frac{1}{3}\pi r^2 h = \frac{1}{3}\pi(2)^2(5) = \frac{1}{3}\pi(4)(5) = \frac{20}{3}\pi$ cubic inches B

11. Given 95°F, $°C = \frac{5}{9}(95-32) = \frac{5}{9}(63) = 5(7) =$ 35°C E

12. Divisibility rule for 3 = sum of the digits are divisible by 3.
Divisibility rule for 8 = last 3 digits are divisible by 8.

- 2952 → 2+9+5+2 = 18, which is divisible by 3
- $8\overline{)2952}$ → 369, 24, 55, 48, 72

Therefore, 2952 is divisible by 3 and 8. Trying the rules on the other answer choices shows that they are not divisible by 3 and 8. A

13. Clue I doesn't eliminate any choices. Clue II eliminates C and D because 1 is the only digit that is neither prime nor composite. Clue III doesn't eliminate any choices. Clue IV gives you the correct

ELEMENTARY - PETTING ZOO
SOLUTIONS

answer because: $2+2=2(2)=4$, but $3+3 \neq 3(3)$, so the correct answer is $\boxed{224}$. A

14. Apples $= \frac{1}{3}(12) = 4$; carrots $= \frac{1}{2}(12) = 6$. Since there are 12 food items in the bag, you subtract 4 and 6 from 12, getting an answer of $\boxed{2}$ sugar cubes. B

15. One way to do this problem is to divide both sides of $8x+28=52$ by 4, because you need a $2x$ term, which is $\frac{8x}{4}$. Dividing by 4 gives $2x+7=\boxed{13}$

Another way - solve for x; $8x=24 \rightarrow x=3 \rightarrow 2(3)+7=\boxed{13}$ D

16. Because there are 7 letters in Shinning's name, divide 30 by 7 and find the remainder; $7\overline{)30}$ $\begin{array}{r}4\\ -28\\ \hline 2\end{array}$ The remainder is 2. The 4 indicates 4 complete cycles of his name and the 2 indicates that on the 30th second, you will recite the 2nd letter, which is $\boxed{H}$. A

17. If you calculate the meal price of each answer choice, you will get the following - A is \$5.85, B is \$5.35, C is \$4.60, and D is \$4.95. The only option $\leq$ \$4.75 is C.

18. Since there are 3 drink options, 2 side options, and 3 entrée options, you will have $(3)(2)(3)$ complete meal options. $(3)(2)(3)=\boxed{18}$ D

19. $\frac{9}{4}=2\frac{1}{4}=2.25$ $\quad \frac{1}{5}=\frac{2}{10}=0.2$

$2.25, -2, 1.3, 0.2, -0.5$

$-2, -0.5, 0.2, 1.3, 2.25$

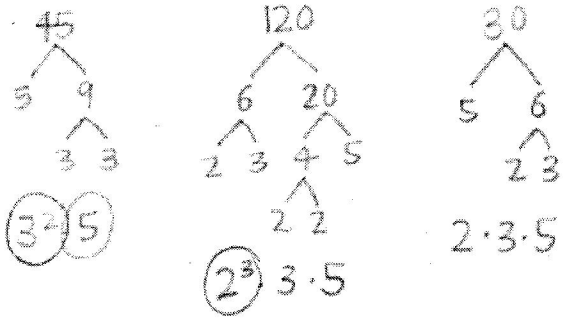
Arranging the numbers from least to greatest will get you $\boxed{-2, -0.5, \frac{1}{5}, 1.3, \frac{9}{4}}$ C

20. Weiming can only be in lane 3 or lane 4, Keven can only be in lane 3 because Danny is in lane 1, which is the other odd-numbered lane. Therefore, $\boxed{\text{Weiming}}$ is in lane 4. D

21. Since diameter $= 2(\text{radius}) = 2(8 \text{ feet}) = 16$ feet, circumference $= \boxed{16\pi}$ D

ELEMENTARY - PETTING ZOO
SOLUTIONS

22. First, convert 2 minutes to 120 seconds because the answer is in seconds. Then find the least common multiple of 45, 120, and 30.



To find the LCM, you need to take the highest powers of all the factors in the three numbers:

$2^3 \cdot 3^2 \cdot 5 = 8 \cdot 9 \cdot 5 = \boxed{360}$ C

23. Distance = rate × time. Since Joyce starts out 5 minutes before Cici, she will have walked 5 mins more total. Using the formula, if we set Cici's time as x minutes, Joyce's time will be x+5 minutes.

$50(x+5) = 75(x)$ (Joyce's distance; Cici's distance) we set them equal because when Cici catches up to Joyce, they will have walked the same distance.

$50x + 250 = 75x \rightarrow 25x = 250 \rightarrow x = 10$ minutes

Therefore, Cici will have walked 10 minutes since her arrival at 2:05 pm. They will meet at $\boxed{2:15\text{ pm.}}$ B

24. By order of operations:

$$\frac{3[(2+3)^2 - 14 \div 2]}{2} - 3^3 \rightarrow \frac{3[(5)^2 - 7]}{2} - 27 \rightarrow \frac{3[18]}{2} - 27$$

$$\frac{54}{2} - 27 = 27 - 27 = \boxed{0}$$ E

25. mean $= \frac{63+60+52+59+52+60+79+63+52}{9} = \frac{540}{9} = 60$

median = 52, 52, 52, 59, (60), 60, 63, 63, 79

mode = 52, because it appears the most (3 times)

The sum of the weights is $60 + 60 + 52 = \boxed{172}$. B

ELEMENTARY - PETTING ZOO

SOLUTIONS

26. The probability that you draw a grape lollipop on your first try is $\frac{8}{24}$. Assuming you draw the first grape, there are 7 grapes left and 23 total, therefore, the probability is $\frac{7}{23}$. The probability that you get two grape lollipops in a row is $\left(\frac{8}{24}\right)\left(\frac{7}{23}\right) = \left(\frac{1}{3}\right)\left(\frac{7}{23}\right) = \boxed{\frac{7}{69}}$. B

27. H K Y [F] does not have any line of symmetry. A

28. This pattern is arithmetic because you add 4 to the current term to get the next term. 19, 23, 27, 31, $\frac{35}{+4}$, $\frac{39}{+4}$, $\boxed{43}$ C

29. After 4 hours, the time is 2:43 pm. That is 6 minutes past the current time, 2:37 pm; therefore, 4 hours − 6 minutes = $\boxed{\text{3 hours and 54 minutes.}}$ B

30. $\frac{10 \text{ questions}}{2\frac{1}{2} \text{ hours}} = \frac{30 \text{ questions}}{x \text{ hours}}$

cross-multiply

$10x = 30\left(\frac{5}{2}\right)$

$10x = 75$ $\quad x = \frac{75}{10} = \frac{15}{2} = \boxed{7\frac{1}{2} \text{ hours}}$ A