Answers

1. $20 \times 23 = 20 \times (24 - 1) = 20 \times 24 - \underline{20}$.

   A) 20 B) 22 C) 23 D) 24

Answer: 1. A

2. Every time Bobby blows 5 bubbles, 4 of them pop. For every 10 bubbles, 8 pop, and for every 20 bubbles, **16** pop.

   A) 12 B) 16 C) 19 D) 25

Answer: 2. B

3. May has 31 days, so it has $24 \times 31 =$ **744** hours in it.

   A) 360 B) 372 C) 720 D) 744

Answer: 3. D

4. Regroup: $(3036 + 1012) + 2024 = 4048 + \underline{2024}$.

   A) 0 B) 1012 C) 2024 D) 3036

Answer: 4. C

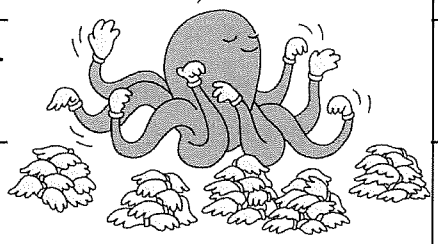
5. When the numbers are divided by 6, the remainders are 2, 1, 0, and 5, respectively. Choice D has the largest remainder.

   A) 44 B) 55 C) 66 D) 77

Answer: 5. D

6. The sum of the factors of 49 is 1+7+49 = **57**.

   A) 49 B) 50 C) 56 D) 57



Answer: 6. D

7. Gomer has 5 piles of identical gloves. If there are a dozen gloves in each pile, Gomer has $5 \times 12 = 60$ gloves. That is $60 \div 2 =$ **30** pairs.

   A) 30 B) 40 C) 60 D) 120

Answer: 7. A

8. $(50 + 50) - (10 + 10) = 2 \times 50 - 2 \times 10 =$ **$2 \times (50 - 10)$**.

   A) $2 \times (50 - 10)$ B) $2 \times (50 + 10)$ C) $4 \times (40 - 10)$ D) $4 \times (50 + 10)$

Answer: 8. A

9. If the product of two whole numbers is 36, the numbers could be 4 and 9. Their sum is **13**.

   A) 13 B) 14 C) 16 D) 19

Answer: 9. A

10. $(100 \times 300) + (300 \times 400) = 300 \times (100 + 400) = 300 \times 500 = 600 \times \underline{250}$.

    A) 500 B) 300 C) 250 D) 200

Answer: 10. C

11. If Sarah walks at a pace of 4 km per hour, it takes her $60 \div 4 = 15$ minutes to walk 1 km and $15 \times 3 =$ **45** minutes for her to walk 3 km.

    A) 30 B) 45 C) 75 D) 80

Answer: 11. B

12. The sum of three consecutive odd numbers must be divisible by 3. The only such number listed is **51** = 15 + 17 + 19.

    A) 47 B) 49 C) 51 D) 53

Answer: 12. C

Go on to the next page

13. If 1 of every 3 apples is removed, 8 of every 24 are removed, leaving 16 per box. There are $10 \times 16 =$ **160** apples remaining all together.

A) 160 B) 140 C) 120 D) 80

13. A

14. Since 5 of the 10 letters in the words MATH LEAGUE are vowels, the probability of the first letter being a vowel is $5/10 = 0.50 =$ **50%**.

A) 25% B) 37.5% C) 40% D) 50%

14. D

15. Since $23+24+25 = 3\times24$, $20\times(23+24+25) = 20\times3\times24 = 24\times$ **60** .

A) 60 B) 62 C) 64 D) 72

15. A

16. Since the l.c.m. of 4, 5, and 6 is 60 and 60 days is equivalent to 8 weeks and 4 days, it will be 4 days after a Sunday. **Thursday** will be when they all next watch a movie on the same day.

A) Monday B) Thursday C) Friday D) Saturday

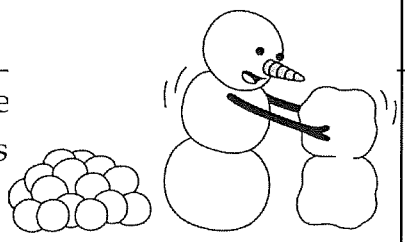
16. B

17. The least such prime is $2 + 3 + 5 + 7 =$ **17** .

A) 11 B) 17 C) 19 D) 23

17. B

18. I have 30 small snowballs. I used 10 to make 2 large snowballs. I now have 20 small ones and 2 large ones. That's **22** snowballs.



A) 18 B) 20 C) 22 D) 24

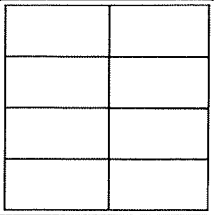
18. C

19. There are twenty children at the playground. They all enjoy either running or skipping, and some enjoy both. Since $18 + 16 = 34$, $34 - 20 =$ **14** enjoy both activities.

A) 8 B) 10 C) 12 D) 14

19. D

20. Let's assume the 8 rectangles are 1 by 2. Additional rectangles are 1 by 4, 2 by 2, 2 by 4, 3 by 2, 3 by 4, and 4 by 4. That's 7 different sizes in all.



A) 6 B) 7 C) 8 D) 10

20. B

21. A **square** cannot be formed cutting a square into 2 identical pieces.

A) square B) triangle C) rectangle D) trapezoid

21. A

22. You paid 80¢ for 2 cookies or 40¢ for 1. I paid \$3.00 for 10 cookies or 30¢ for 1. You paid 10¢ = **\$0.10** more per cookie than I paid.

A) \$0.05 B) \$0.10 C) \$0.20 D) \$0.40

22. B

23. There were 25 red marbles and 15 blue marbles in a bag. Lisa took at most 10 red marbles. Since Ben took the rest, he took at least 15 red marbles. So choice **A** must be true.

A) Ben took more red marbles than Lisa took.
B) Lisa took at least one red marble.
C) Lisa took more marbles than the number of blue marbles Ben took.
D) Ben took more blue marbles than Lisa took.

Answer: 23. A

24. Since the squares of 10, 11, 12, . . . , 30, and 31 are all 3-digit numbers, but the square of 32 = 1024, there are 31 − 10 + 1 = **22** such numbers.

A) 32 B) 31 C) 22 D) 21

Answer: 24. C

25. The sum of the 3 digits must be a multiple of 3. We have a partial sum of 2 + 6 = 8. If we add **4** to 8, we get 12, a multiple of 3.

A) 2 B) 4 C) 6 D) 8

Answer: 25. B

26. The matched numbers are multiples of 2 × 3 = 6, so they are 6, 12, 18, . . . , 96, and 102. That is a total of 102 ÷ 6 = **17** matched numbers.

A) 17 B) 18 C) 34 D) 36

Answer: 26. A

27. Abe read a 62-page book. He read 2 pages the first day. On each following day, Abe then read twice as many pages as he had read the day before, until he finished the book. He read (2 + 4 + 8 + 16 + 32) pages. It took Abe **5** days to read the whole book.

A) 4 B) 5 C) 6 D) 7

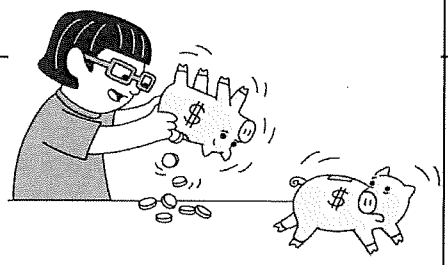
Answer: 27. B

28. Count these multiples: 17×6, 19×6, . . . , 165×6. There are **75** of them.

A) 74 B) 75 C) 149 D) 150

Answer: 28. B

29. Since she has an equal number of each, the total value is a multiple of 1¢ + 5¢ + 10¢ = 16¢ = \$0.16. The smallest multiple of \$0.16 that is a whole number of dollars is **\$4.00**.



A) \$1.00 B) \$2.00 C) \$4.00 D) \$8.00

Answer: 29. C

30. The ones digits of the three numbers have to be {6,5,1}, {6,4,2}, or {5,4,3}. Therefore, the tens digits have to be {2,3,4}, {1,3,5}, or {1,2,6}. All the choices listed below are possible except **43**.

A) 32 B) 34 C) 41 D) 43

Answer: 30. D

The end of the contest