Answers

The Natural Numbers: Chapter Test 1

1. What is 4^3?

   a. 12

   b. 16

   c. 32

   d. 64

2. Which expression has an answer of 32?

   a. $4 + 5 \times 3 + 5$ = 24

   b. $4 + (4 \times 5) + 8^0$ = 25

   c. $4 + 8^1 + 4 \times 5$ 32

   d. $1^6 \times 1^6$ 1

3. Which set of the following numbers has only prime numbers?

   a. {7, 11, 97}

   b. {9, 51, 99}

   c. {13, 57, 67}

   d. {1, 3, 5}

4. Calculate

   a. $4 \times 7 + 8 \div 2$ 32

   b. $12 \div 6 \times 8 - 10 \div 2$ 11

5. Match the property with the equation below

   1. The neutral element of addition
   2. Commutative property of addition
   3. Associative property of addition
   4. The neutral Element of multiplication

   A. $(4 + 5) + 2 = 4 + (5 + 2)$
   B. $2 + 0 = 0 + 2$
   C. $7 \times 1 = 1 \times 7$
   D. $6 + 8 = 8 + 6$

1.	
2.	
3.	
4.	

6. Given the area of a square equals to 144 cm^2, find the length of one side. 12

7. Write 220 as a product of prime factors using exponential notation. $220 = 2^2 \times 5 \times 11$

8. What is the GCF and LCM of 40 and 100? GCF = 20
   LCM = 200

9. A pentagon (5-sided polygon) has the following side lengths: 45 cm, 28 cm, 63 cm, 50 cm, and 31 cm. What is its perimeter rounded to the nearest hundreds?

P = 45+28+63+50+31 = 217 Rounded = 200

7 → 7, 14, 28, 35, 42, 49, 56, 63, 70, 77, 84, 91, 98, 105, 112, 119, 126, 133, 140, 147, ~~154, 161~~, 168, 175, 182, 189, 196, 203, 210;
217, 224, 231, 238, 245,
15 → 15, 30, 45, 60, 75, 90, 105, 120, 135, 150, 165, 180, 195, 210, 225, 240

10. During a Comedy Night fundraiser at Vimont Junior High School, the organizing committee was giving out door prizes.

- Every 7th person got a VJHS bookmark.
- Every 15th person got a VJHS keychain.
- Every 35th person got VJHS T-shirt.

If 250 people attended the Comedy Night, how many of them got all three prizes?

2

105 & 210

35 → 35, 70, 105, 140, 175, 210, 245

Extension

11. Meghan is in charge of making goodie bags for the end-of-school-year party. She has 660 gum balls, 396 individually wrapped chocolates and 264 glitter pens. If she wants everyone to get the same amount of gum balls, glitter pens and chocolates, what is the maximum number of bags she can make and how many of each item will each goodie bag contain?

132 bags

11. Gum balls = 5

Chocolates = 3

Pens = 2

10

7 = 7

15 = 3 × 5

35 = 7 × 5

LCM = 7 × 3 × 5

= 105

12.

$(422 - 27) = 395$

$217 \times 7 = 1519$

$178 \times 11 = \ldots 1958$

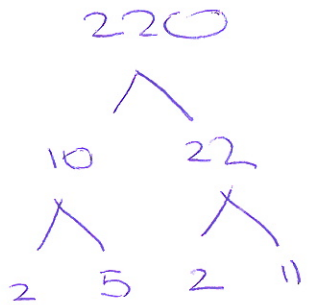
TOTAL $= 1519 + 1958$?

$= \$3477$

$[((422-27)-217) \times 11] + (217 \times 7) = \$3477$

the profit made from ticket sales was $3477

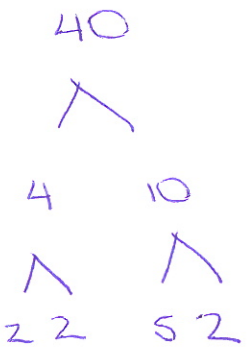
(7)

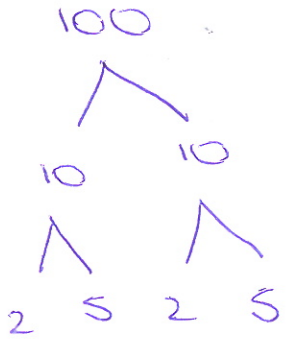


$220 = 2 \times 2 \times 5 \times 11$

$220 = 2^2 \times 5 \times 11$

(8)





$40 = 2 \times 2 \times 2 \times 5$

$100 = 2 \times 2 \times 5 \times 5$

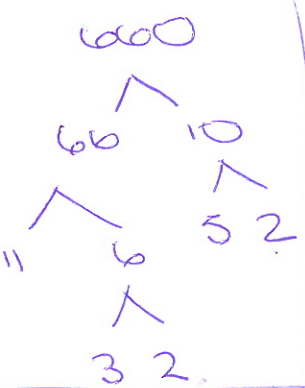
GCF $= 2 \times 2 \times 5 = 20$

LCM $= 2 \times 2 \times 2 \times 5 \times 5 = 200$

(11) 660 gum balls

396 chocolates

264 pens

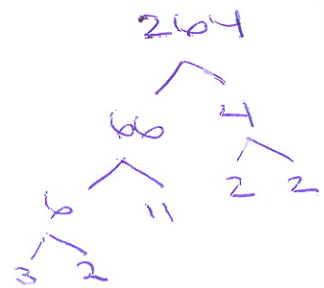


132 bags

G.B $= 660 \div 132 = 5$

C $= 396 \div 132 = 3$

P $= 264 \div 132 = 2$



$660 = 2 \times 2 \times 3 \times 5 \times 11$

$264 = 2 \times 2 \times 2 \times 3 \times 11$

$396 = 2 \times 2 \times 3 \times 3 \times 11$

GCF $= 2 \times 2 \times 3 \times 11 = 132$

9. Given the following equality find the value of x. Use a factor tree to help you with this task.

$128=2^x$ $x = 7$

10. Julie wants to buy 3 apps for her IPhone. The first app is \$22. The second app was \$3 more than the first. The third was \$5 less than the first. If Julie has a \$75 gift card, how much would she have left after buying the 3 apps? *Write this situation using a chain of operations and solve.*

$75 - (22) - (22+3) - (22-5)$

$= 75 - 22 - 25 - 17$

$= 11$

Extension

11. During a Colour-Me-Rad running marathon the coloured balls were given out in the following manner:

- every 20th runner received RED
- every 35th runner received GREEN
- every 50th runner received BLUE
- every 100th runner received YELLOW
- every 125th runner received PURPLE

How many people received all five colours if 14 000 runners participated in the marathon?

12. One day, Sarah sent out a chain letter to two of her friends. The next day, those two friends each sent the letter to two of their other friends, and the chain letter continued on in this manner. How many people received the chain letter on the 7th day? Note that nobody ever receives the letter twice.

The Natural Numbers: Chapter Test 2

1. What is the square root of 81?

   a. 10

   b. 2

   c. 9

   d. 40.5

2. How can we quickly check if a number is divisible by three without a calculator?

   a. Check that the last number is divisible by three

   b. Check that the sum of the digits is divisible by three

   c. Check that the sum of the digits is divisible by thirteen

   d. Check that the last two digits are divisible by three

3. Calculate

   a. $(5 + 10 \times 3^2 - 9^0) + (4 + 8 \div 2)$ $= (94) + (8) = 102$

   b. $\sqrt{36} - \sqrt{9} + 5 \times 2^3$ $= 6 - 3 + 5 \times 8$
   $= 43$

4. Write the inequalities that describe these statements, using the following symbols: $<, >, \leq$ or $\geq$

   a. *x is less than 4* $x < 4$

   b. *y is greater than or equal to 8* $y \geq 8$

   c. *m is greater than or equal to 10* $m \geq 10$

   d. *b is less than or equal to 12* $b \leq 12$

5. What is the prime factorization of 60?

   $60 = 2 \times 2 \times 3 \times 5$

   60 → 2, 30 → 2, 15 → 3, 5

6. Find two natural numbers that fit the following conditions

   a. The difference is 4 and the product is 60. 10 & 6

   b. The product is 56 and the sum is 18. 14 & 4

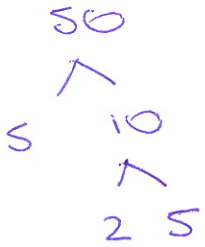
7. Find the LCM of 5 and 8. What is the next common multiple?

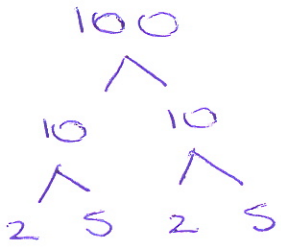
   $5 = 5$
   $8 = 2 \times 2 \times 2$
   LCM = 40, 80

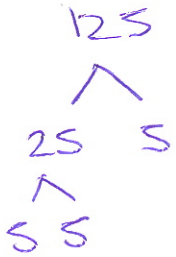
   What is the product of the first 3 prime numbers in the set of natural numbers?

   $2 \times 3 \times 5 = 30$

(11)







$20 = 2 \times 2 \times 5$

$35 = \times 5 \times 7$

$50 = 2 \times 5 \times 5$

$100 = 2 \times 2 \times 5 \times 5$

$125 = \times 5 \times 5 \times 5$

LCM $= 2 \times 2 \times 5 \times 5 \times 5 \times 7 =$

$= 3500$

$14\,000 \div 3500 = 4$

Red: $14\,000 \div 20 = 700 - 140 = 560$

12

$1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7 =$