Grade 4 Unit 1 worksheet: Tally marks and Roman numerals (answer key)

ANSWERS AT A GLANCE

1. 18 tomatoes and 13 peppers; 5 more tomatoes.
2. (a) 36 (b) 72 (c) 165 (d) 710 (e) 1,250
3. (a) XXIII (b) LXVII (c) DLXXX (d) MCCXV (e) MMDCCIII
4. (a) 46 (b) 194 (c) 490 (d) 948 (e) 2,409
5. (a) LXIV (b) CDIX (c) DCCXLIV (d) MCDXCIX (e) MMMCMXL
6. (a) MDCCLXII (b) MDCCCXLIX (c) MMXXIV

WORKED SOLUTIONS

1. Ben keeps tallies of the vegetables picked from the class garden. The tomato tally has 3 bundles of five and 3 single marks. The pepper tally has 2 bundles of five and 3 single marks.

How many tomatoes were picked, and how many peppers? How many more tomatoes than peppers were picked?

ANSWER

18 tomatoes and 13 peppers; 5 more tomatoes.

SOLUTION

Count the bundles by fives, then the single marks by ones.

Tomatoes: 3 × 5 + 3 = 15 + 3 = 18.

Peppers: 2 × 5 + 3 = 10 + 3 = 13.

Difference: 18 − 13 = 5, so 5 more tomatoes were picked.

2. Write each Roman numeral in our digits. Every symbol here is added.

(a) XXXVI (b) LXXII (c) CLXV

(d) DCCX (e) MCCL

ANSWER

(a) 36 (b) 72 (c) 165 (d) 710 (e) 1,250

SOLUTION

(a) 10 + 10 + 10 + 5 + 1 = 36. (b) 50 + 10 + 10 + 1 + 1 = 72. (c) 100 + 50 + 10 + 5 = 165.

(d) 500 + 100 + 100 + 10 = 710. (e) 1,000 + 100 + 100 + 50 = 1,250.

3. Write each number in Roman numerals. None of them needs a subtractive pair.

(a) 23 (b) 67 (c) 580

(d) 1,215 (e) 2,703

ANSWER

(a) XXIII (b) LXVII (c) DLXXX (d) MCCXV (e) MMDCCIII

SOLUTION

Split each number by places and write each part, largest first.

(a) 23 = 20 + 3: XX then III. (b) 67 = 60 + 7: LX then VII. (c) 580 = 500 + 80: D then LXXX.

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(d) 1,215 = 1,000 + 200 + 10 + 5: M, CC, X, V. (e) 2,703 = 2,000 + 700 + 3: MM, DCC, III; the 0 tens write nothing.

4. Write each Roman numeral in our digits. Look for subtractive pairs.

(a) XLVI (b) CXCIV (c) CDXC

(d) CMXLVIII (e) MMCDIX

ANSWER

(a) 46 (b) 194 (c) 490 (d) 948 (e) 2,409

SOLUTION

(a) XL + VI = 40 + 6 = 46. (b) C + XC + IV = 100 + 90 + 4 = 194. (c) CD + XC = 400 + 90 = 490.

(d) CM + XL + VIII = 900 + 40 + 8 = 948. (e) MM + CD + IX = 2,000 + 400 + 9 = 2,409.

5. Write each number in Roman numerals. Each one needs at least one subtractive pair.

(a) 64 (b) 409 (c) 744

(d) 1,499 (e) 3,940

ANSWER

(a) LXIV (b) CDIX (c) DCCXLIV (d) MCDXCIX (e) MMMCMXL

SOLUTION

Split each number by places and use the place patterns.

(a) 64 = 60 + 4: LX then IV. (b) 409 = 400 + 9: CD then IX. (c) 744 = 700 + 40 + 4: DCC, XL, IV.

(d) 1,499 = 1,000 + 400 + 90 + 9: M, CD, XC, IX. (e) 3,940 = 3,000 + 900 + 40: MMM, CM, XL.

6. A clockmaker paints the year each clock was made on its face, in Roman numerals. Write the year for each clock.

(a) a tall hall clock made in 1762

(b) a station clock made in 1849

(c) a kitchen clock made in 2024

ANSWER

(a) MDCCLXII (b) MDCCCXLIX (c) MMXXIV

SOLUTION

(a) 1762 = 1,000 + 700 + 60 + 2: M, DCC, LX, II, so MDCCLXII.

(b) 1849 = 1,000 + 800 + 40 + 9: M, DCCC, XL, IX, so MDCCCXLIX.

(c) 2024 = 2,000 + 20 + 4: MM, XX, IV; the 0 hundreds write nothing. So MMXXIV.

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