

1. List all the factors of 48.
2. Perform the divisions. Show both the quotient and the remainder. For example,

$$19 \div 7 = 2 \text{ R } 5$$

- (a) $2007 \div 7 =$
- (b) $2007 \div 98 =$

3. Perform the following operations. Show all steps.

- (a) $7((2^2 + 3^2) - 10) - 1 =$
- (b) $2^3 + 3 \cdot 2^2 - (2 + 2 \div 2)(1 + 2^5 - 31) =$
- (c) $2^6 - 2^5 - 3^3 + 3^2 =$
- (d) $7 + 35 \div 7 =$
- (e) $\frac{7(4^2 - 2 \cdot 7)}{2^3 - 1^3} + 4 - 2(3^3 - 5^2) =$
- (f) $3^2 \cdot (3^3 - 6 \cdot 2^2) + (44 \div (19 - (3^2 - 1))) =$
- (g) $84 \div 7 - (3 \cdot (8 - 3 \cdot 2)) =$
- (h) $(2^2 + 1)^3 \div 5^2 =$
- (i) $\frac{2^4 - 2}{3^2 - 2} + 3 \cdot 2 =$
- (j) $\left(7 + \frac{2 \cdot 5 - 4}{2^2 - 1}\right) \cdot 4 - 3 =$
- (k) $5^2 + 6^2 - 2^5 =$

4. Let $x = 2$, $y = 5$, and $z = 6$. Evaluate each of the following expressions.

- (a) $z^2 - 2x + 3y =$
- (b) $\frac{(z - x) + (y + 1)}{(z - x) - (y - 1)} =$
- (c) $x^2x^3 =$
- (d) $(x^2)^3 =$
- (e) $\frac{z^2 - x^2}{(z - x)^2} =$
- (f) $\frac{3xy^2 + 5(z - y)^2 - z - y}{xz - y - 1} =$

5. Consider the equation $2(x^2 + 13 - 7x) = (x - 1)(x - 2)$. In each case, determine whether the number given is a solution of the equation or not.

- (a) $x = 3$
- (b) $x = 5$
- (c) $x = 8$
- (d) $x = 10$

6. The ancient Greeks often drew pictures of numbers. A triangular number is one that can be arranged in a triangle. The first four triangular numbers are shown on the picture below. Find the value of the tenth triangular number.

