

1. List all the factors of 48.
2. Which one of the following numbers is NOT a prime?

71, 101, 187, 43, 97

3. Find the prime-factorization for 54.
4. Perform the divisions. Show both the quotient and the remainder.

(a) $2007 \div 7 =$

(b) $2007 \div 98 =$

5. Perform the following operations. Show all steps.

(a) $-3^2 =$

(b) $(-3)^2 =$

(c) $|7 - 5| - 3| =$

(d) $|7 - |5 - 3|| =$

(e) $-2(4 - 2(-5)) =$

(f) $7((2^2 - (-3)^2) - 10) - 1 =$

(g) $-2 - (-2)^2 - (-2)^3 =$

(h) $|12 + (-7)| =$

(i) $|12| + |-7| =$

(j) $7 + 35 \div 7 =$

(k) $\frac{7(-4^2 - 2 \cdot 7)}{2^3 - 1^3} + 4 - 2(3^3 - (-5)^2) =$

(l) $\left(\left(\left((1 - 3)^2 - 2 \right)^2 - 4 \right)^2 - 5 \right)^2 - 6 =$

(m) $84 \div 7 - (-3((-1)^8 - 3(-2))) =$

(n) $\sqrt{289 - 64} =$

(o) $\sqrt{289} - \sqrt{64} =$

(p) $\left(7 + \frac{2 \cdot 5 - 4}{1^2 - (-2)^2} \right) \cdot 4 - 3 =$

(q) $\frac{3 - (-7)}{-7 - 3} =$

6. Let $x = -1$, $y = -5$, and $z = 4$. Evaluate each of the following expressions.

(a) $\frac{x - y}{y - x} =$

(b) $(2x - 1) - (3x - y) =$

(c) $z^2 - 2x + 3y =$

(d) $\frac{(x - 2z) + (2y - x)}{(z - y) - (x + z)^2} =$

(e) $x^2 - x^3 + 3x + 8 =$

(f) $2x^2y - 3xy^2 =$

7. Consider the equation $10(x^2 - 4) + x^3 = -x + 2(x^2 + 1)$. In each case, determine whether the number given is a solution of the equation or not.

(a) $x = 0$

(b) $x = 3$

(c) $x = -3$

(d) $x = -7$

(e) $x = -2$

(f) $x = 2$

8. 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.

