

- List all factors of 200.
- Simplify each of the following expressions. Show all steps.

(a)  $\frac{5^2 - 3^2}{(5 - 3)^2} =$

(b)  $2^4 - (5^2 - 2 \cdot 3^2) - (7 - 6 + 1)^3 + 10 \div 5 \cdot 2 =$

(c)  $\frac{2 \cdot 3^2 - (3^3 - (8 - 6 \div 2)^2)}{2 \cdot 5^2 - 2^4 \cdot 3} - \frac{7^2 - 5^2}{(7 - 5)^2} =$

(d)  $\left( \left( (7 - 4)^2 - 2 \cdot 1^3 \right)^2 - 3^3 \right) - 9 =$

(e)  $\frac{5 \cdot 2^2 - 2^3}{2 \cdot 5 - 3^2 - 1} =$

(f)  $62 - 2(5^2 - 3(2(3^2 - 2^3) - 1)) =$

3. Evaluate  $\frac{3ab + 2a^2 - 2b^2}{2a - b} =$  if

(a)  $a = 3$  and  $b = 0$

(b)  $a = 1$  and  $b = 2$

(c)  $a = 5$  and  $b = 3$

(d)  $a = 4$  and  $b = 2$

4. Consider the equation  $2(x^2 + x + 8) = (x + 4)(x + 3)$ . In each case, determine whether the number given is a solution of the equation or not.

(a)  $x = 0$

(b)  $x = 1$

(c)  $x = 2$

(d)  $x = 3$

(e)  $x = 4$

(f)  $x = 5$

5. Consider the equation  $y - 2x = 5(x - 1)$ . For each of the pair of numbers given, determine whether they are a solution of the equation or not.

(a)  $x = 6$  and  $y = 15$

(b)  $x = 2$  and  $y = 5$

(c)  $x = 2$  and  $y = 9$

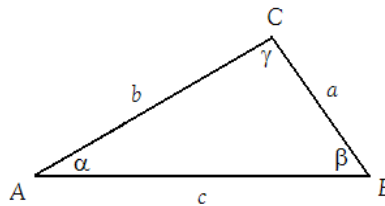
(d)  $x = 1$  and  $y = 5$

(e)  $x = 1$  and  $y = 2$

6. We went on the top of a 640 ft tall building and threw an object upward. We measured how high the object is at times. Exactly  $t$  seconds after we threw it, the height of the object, (measured in feet) is

$$h_t = 640 + 96t - 16t^2$$

- (a) Where is the object 1 seconds after we threw it?
  - (b) Where is the object 6 seconds after we threw it?
  - (c) Where is the object 8 seconds after we threw it?
  - (d) Where is the object 10 seconds after we threw it?
7. Consider the triangle shown on the picture below.



- (a) If  $\alpha = 35^\circ$  and  $\beta = 50^\circ$ , find the value of  $\gamma$ .
- (b) Which side is the shortest one in the triangle  $ABC$ ?