1. The volume is 864 m^3.

2. It is 0.4 cm long on the map.

3. (a) $16^{\frac{1}{4}} + 2^{-2} - \left(\frac{16}{25}\right)^{-\frac{1}{2}} = 1$ (b) $\sqrt{12} - \sqrt{27} + \sqrt{3} = 2\sqrt{3} - 3\sqrt{3} + \sqrt{3} = 0$

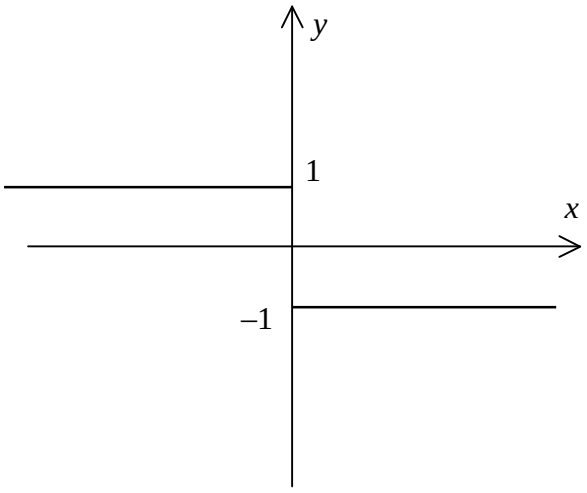
4. $\{x : x \le \frac{3}{5} \text{ or } x > 1\}$

5. Kate is 16 and her brother is 11.

6. 864 with the number 0.

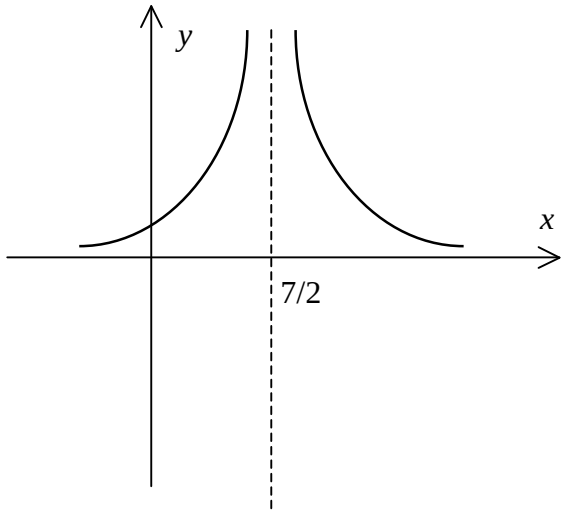
7.

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



(a) Domain: $R - \{0\}$, Range: {–1, 1}

(b) $y = \frac{1}{|2x-7|}$



(b) Domain: $R - \{7/2\}$, Range: R^+

8. (a) T (b) F (c) T (d) F (e) F (f) T

9. $k = \frac{5}{2}$

10. Domain: $\{x : -\frac{\sqrt{2}}{2} \le x \le \frac{\sqrt{2}}{2}\}$. Range of f: $\{y : y \ge 0\}$

11. The original numbers are 2 and 5.

12. Proof: $V = x^2 - 2px + 2p^2 = x^2 - 2px + p^2 + p^2 = (x - p)^2 + p^2 \ge 0$ is non negative (is positive and equal zero) for all real values of x and p.