

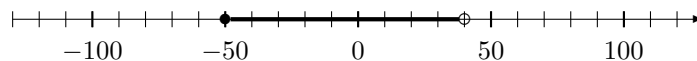
Problem 1. Express $x < 5$ in interval notation (1 point).

Solution.

$$(-\infty, 5)$$

Problem 2. Graph $[-50, 20) \cup (-10, 40)$ on the number line below (2 points).

Solution.



Problem 3. Rationalize $\frac{x^2}{\sqrt[3]{y^5}}$ (2 points).

Solution.

$$\frac{x^2}{\sqrt[3]{y^5}} = \frac{x^2}{y\sqrt[3]{y^2}} = \frac{x^2}{y\sqrt[3]{y^2}} \cdot \frac{\sqrt[3]{y}}{\sqrt[3]{y}} = \frac{x^2\sqrt[3]{y}}{y \cdot y} = \frac{x^2\sqrt[3]{y}}{y^2}$$

Problem 4. Simplify the following expression (5 points):

$$\left(\frac{5a^3b^{-2}}{c^{-5}b^4}\right)^{-3}$$

Solution.

$$\left(\frac{5a^3b^{-2}}{c^{-5}b^4}\right)^{-3} = \frac{5^{-3}a^{-9}b^6}{c^{15}b^{-12}} = \frac{b^6b^{12}}{5^3a^9c^{15}} = \frac{b^{18}}{125a^9c^{15}}$$