• late hw: as before
• completion: 5 pts as before
• 11(a) 5 pts
  – correct answer

  Proof.
  \((\Rightarrow)\) Suppose \(x \in \{x \in \mathbb{R} : \frac{3}{4}x - 2 > 10\}\). Then \(x \in \mathbb{R}\) and \(\frac{3}{4}x > 12\). Multiplying \(\frac{4}{3}\) on both sides of the above equation, we obtain \(x > 16\). Because \(x\) is also a real number, \(x \in (16, \infty)\). We conclude that \(\{x \in \mathbb{R} : \frac{3}{4}x - 2 > 10\} \subseteq (16, \infty)\).

  \((\Leftarrow)\) Now we suppose \(x \in (16, \infty)\). This means that \(x \in \mathbb{R}\) and \(x > 16\). Multiplying \(\frac{4}{3}\) and subtracting 2 on both sides of the equation yields \(\frac{3}{4}x - 2 > 10\). We conclude that \((16, \infty) \subseteq \{x \in \mathbb{R} : \frac{3}{4}x - 2 > 10\}\).

  By \((\Rightarrow)\) and \((\Leftarrow)\), we obtain \((16, \infty) = \{x \in \mathbb{R} : \frac{3}{4}x - 2 > 10\}\).

• grading: 2 pt for forward direction (1 pt for the “suppose \(x \in \ldots\)” and 1 pt for reasonable argument that shows \(x\) is in the other set; 2 pt for backward direction (same as the grading for the forward direction); 1 pt for the conclusion (i.e. saying “we need to show the two sides of the inclusion” or stating the conclusion like the last paragraph of the above proof); -0.5 pt for minor mistakes.