1. Solve the following equations:

    (a) $2(x - 3) + 5 = 2x + 10$

    (b) $\dfrac{2x - 3}{5} + 2 = \dfrac{1}{10} - \dfrac{2 - 5x}{2}$

2. Solve: $|3x - 2| = 4$

3. What is the value of the real number a so that the equation

$$2x - a = 8x$$

    has $x = 2$ as a solution?

4. Solve: $(2x + 3)(x - 4) = 0$.

5. Solve: $x^2 - 9 = 0$.

6. Solve: $x^2 + x = 6 + 2x$.

7. Factor completely: $x^3 + 3x^2y - xy^2 - 3y^3$.

8. Add: $\dfrac{x + 3}{2} + \dfrac{5}{x}$.

9. Simplify: $\dfrac{2xy^2}{7z^3} \div \dfrac{4x^2y}{14z^4}$.

10. What's the equation of the line in Figure 1?

11. Find the coordinates of the point P in Figure 2. The equations of the two lines are shown.

12. Simplify: $\sqrt{175}$.

13. The two legs of a right triangle have length 8 cm and 6 cm. What is the length of the hypotenuse?

14. Explain why the triangle in Figure 3 is a right triangle.
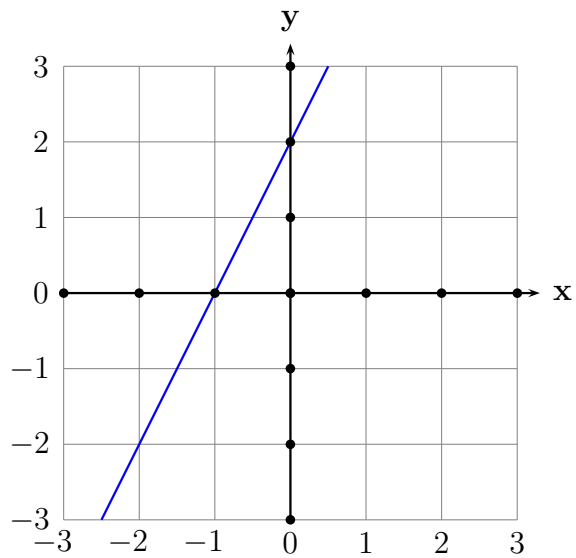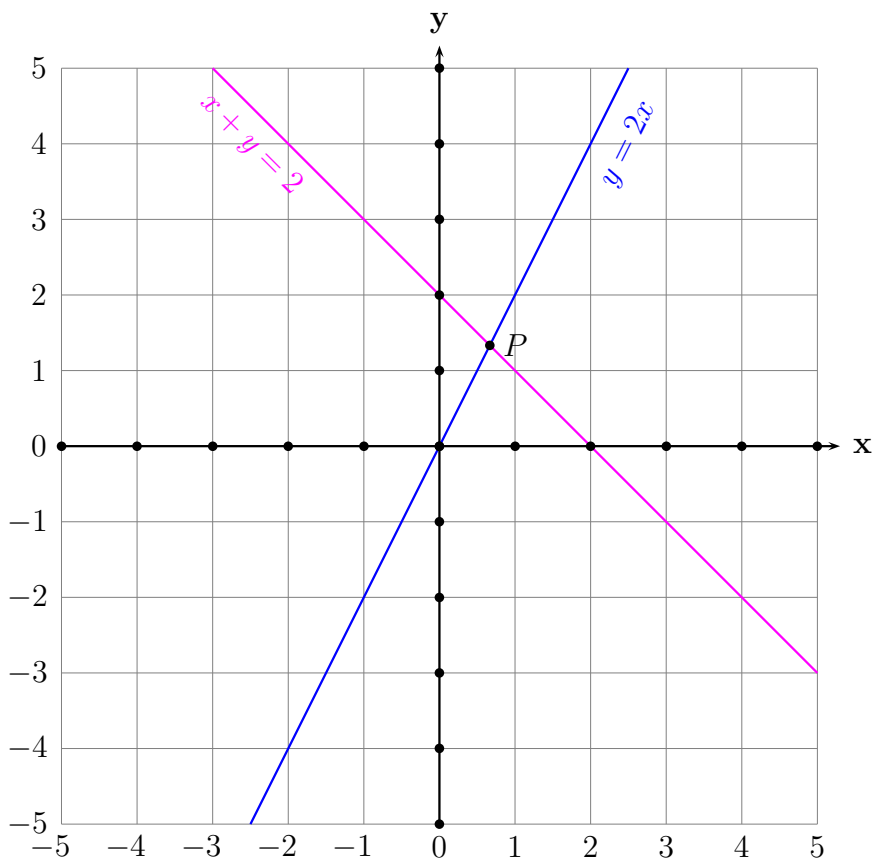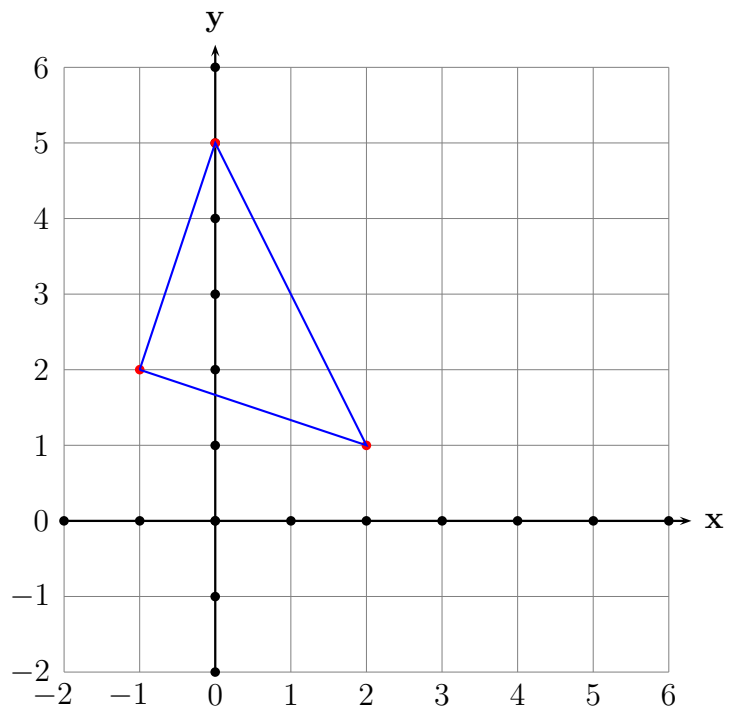
Figure 1: The line of Question 10

Figure 2: The lines of Question 11

Figure 3: The triangle of Question 14