Review Test for Math 06

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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. What is the value of the real number a so that the equation
   $$2x-a=8x$$
   has $x=2$ as a solution?
3. Solve: $(2x+3)(x-4)=0$.
4. Solve: $x^2-9=0$.
5. Solve: $x^2+x=6+2x$.
6. Solve $x^2+x-1=0$
7. Solve $x^2+x+1=0$
8. Factor completely: $x^3+3x^2y-xy^2-3y^3$.
9. Add: $\dfrac{x+3}{2}+\dfrac{5}{x}$.
10. Simplify: $\dfrac{2xy^2}{7z^3}\div\dfrac{4x^2y}{14z^4}$.
11. What's the equation of the line in Figure 1?
12. Find the coordinates of the point P in Figure 2. The equations of the two lines are shown.
13. Simplify: $\sqrt{175}$.
14. The two legs of a right triangle have length 8 cm and 6 cm. What is the length of the hypotenuse?
15. Find the distance between the points P and Q shown in Figure 3.
    Hint. Use Pythagorean theorem for the right triangle shown in dashed lines.
16. Explain why the triangle in Figure 4 is a right triangle.
    Hint. If the lenghts of the three sides of a triangle satisfy $a^2+b^2=c^2$ then the triangle is a right triangle.

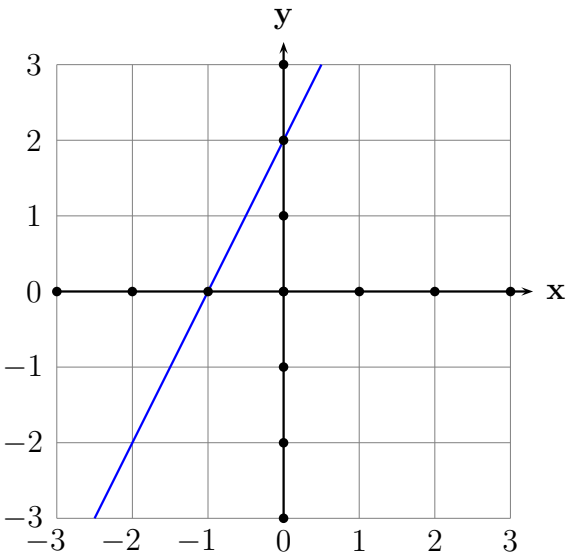

Figure 1: The line of Question 11

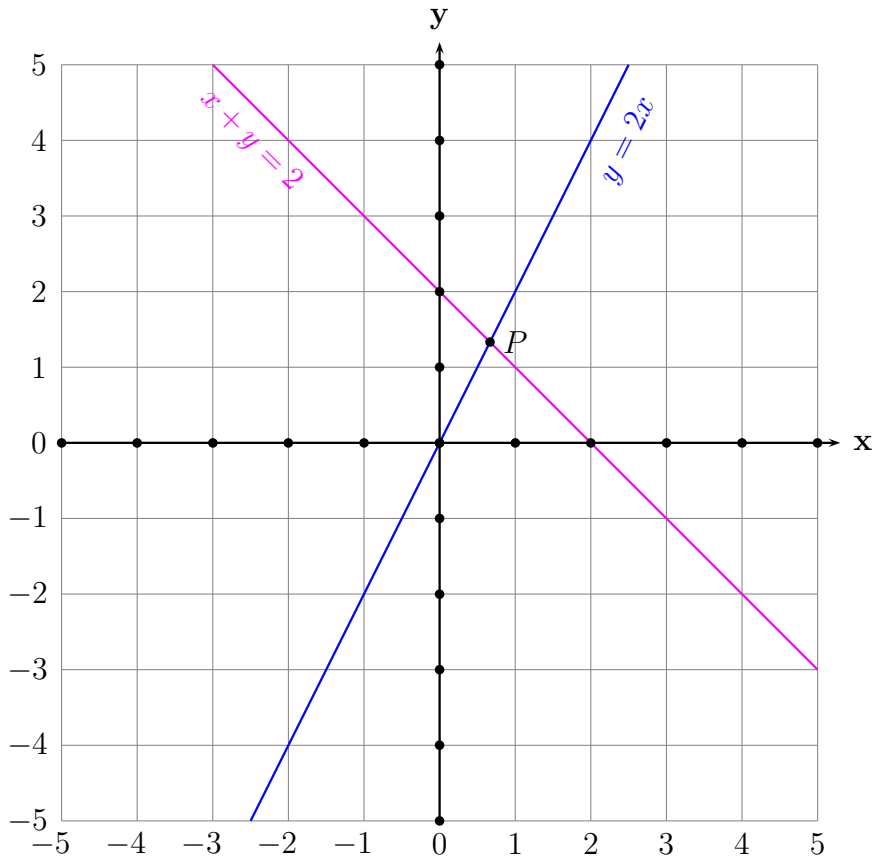

Figure 2: The lines of Question 12

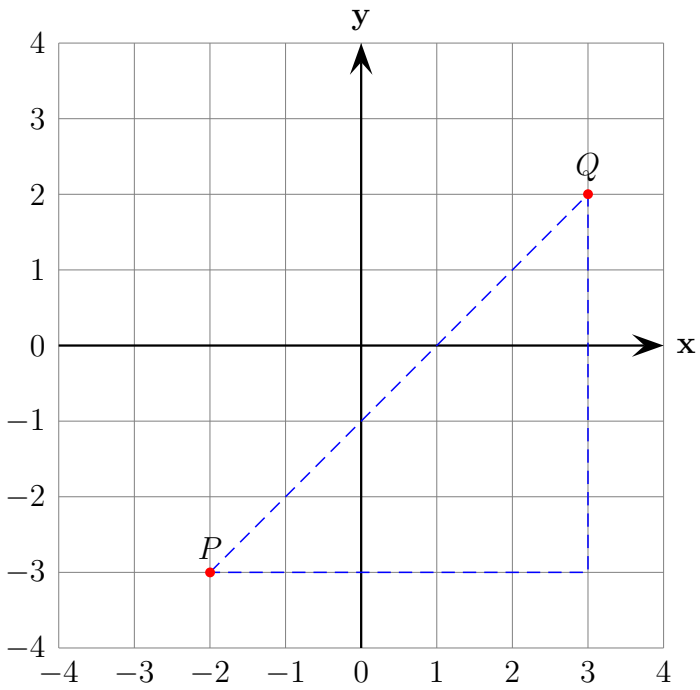

Figure 3: The two points of Question 15

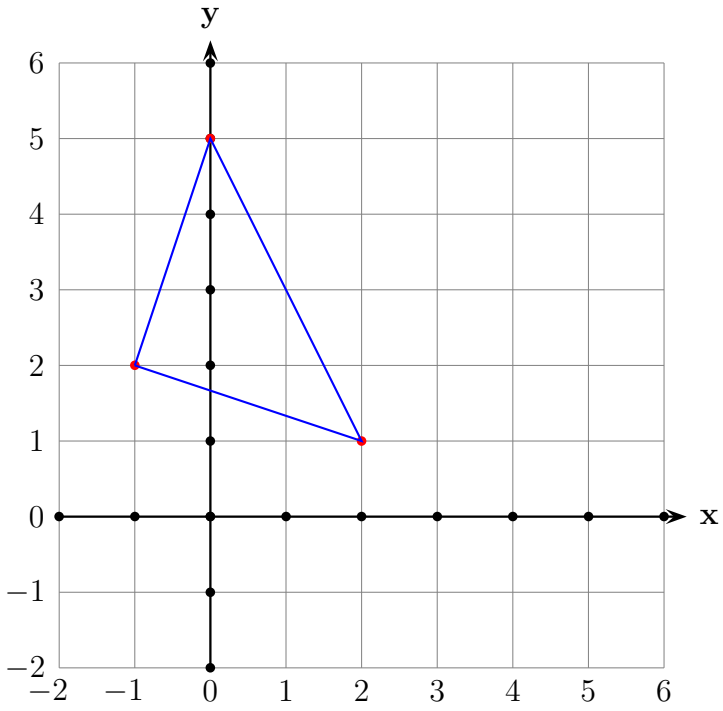

Figure 4: The triangle of Question 16