[12-02-14-T]

Linear function in standard form.

■ **All answers must be in standard form: $a\,x + b\,y = c$, where a, b, c are integers.**

[1] Find the equation of the line through $P(0, 5)$ that is perpendicular to the line $y = -x + 203$.

[2] Find the equation of the line through $P(-1, -2)$ that is parallel to the line $y = -3\,x - \frac{1}{101}$.

[3] Find the equation of the line through $P(10, 2)$ that is perpendicular to the line $2\,x - y = 5$.

[4] Find the equation of the line through $P(0, 0)$ that is parallel to the line $2\,x - 3\,y = -3$.

[5] Find the equation of the line through $P(5, 0)$ that is parallel to the line $x = -7$.

[6] Find the equation of the line through $P(0, -3)$ that is parallel to the line $y = 15$.

Answers

[1] $y - 5 = x \Longleftrightarrow x - y = -5$.

[2] $y + 2 = -3\,(x + 1) \Longleftrightarrow y + 2 = -3\,x - 3 \Longleftrightarrow 3\,x + y = -5$

[3] $y - 2 = \frac{1}{2}\,(x - 10) \Longleftrightarrow 2\,y - 4 = x - 10 \Longleftrightarrow x - 2\,y = 6$.

[4] $y = \frac{2}{3}\,x \Longleftrightarrow 3\,y = 2\,x \Longleftrightarrow 2\,x - 3\,y = 0$.

[5] $x = 5$.

[6] $y = -3$.