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4 ❦ Linear functions

Student ID No.											Name
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1 Each of the following, find an equation of the line and write it in slope-intercept form $y = mx + n$.

a) Slope is -3, and passes through $(-2, -1)$.

b) Passes through two points $(3, -2)$ and $(-2, 1)$.

2 Solve the following equations with respect to the unknown indicated in [ ].

$$V = C\left(1 - \frac{T}{N}\right) \quad [T]$$

3 Solve the following systems of equations

$$\begin{cases} 4x + 5y = 2 \\ 3x - 2y = 3 \end{cases}$$

4 Solve each of the following inequalities and express the solution on a number line.

a) $1 - 3x \leqq \dfrac{2x + 11}{4}$

b) $3x < 13 - 7(x + 1)$

c) $|3x - 2| \geqq 1$

5 Solve each of the following systems of inequalities and express the solution on a number line.

a) $\begin{cases} 2x - 1 \geqq 3x + 4 \\ -x + 4 > 2(x - 2) \end{cases}$

b) $\begin{cases} \dfrac{2x + 1}{3} < \dfrac{3x - 1}{2} \\ \dfrac{3}{2}x - 2 \leqq x - \dfrac{2}{3} \end{cases}$

6 At an apparel shop, during Golden Week, all products in the store were sold at 30% off. In addition, Internet members are given a special discount of 20% off discount prices. What percentage of the original price will the final discount price be?

7 The relationship between Fahrenheit (°F) and Celsius (°C) is represented by $C = \dfrac{5}{9}(F - 32)$. In the United States, it is common to express temperature in degrees Fahrenheit. For example, if the body temperature rises above 100°F, medical treatment is said to be required, but what will that mean in Celsius?