

Algebra Assessment Test

$$\begin{aligned} (1) \quad & 2(x-3y) - 4(3x-y) \\ & 2x - 6y - 12x + 4y \\ & -10x - 2y \end{aligned}$$

$$(2) \quad \frac{-4 + 3(-3)}{(-4)^2 - 6(-3)^2 - (-1)^2}$$

$$\frac{-4 - 9}{16 - 54 - 1} = \frac{-13}{-39} = \frac{1}{3}$$

$$\begin{aligned} (3) \quad & 7 - y = -2 \\ & -7 \quad -7 \\ \hline & -y = -9 \\ & y = 9 \end{aligned}$$

$$\begin{aligned} (4) \quad & 5(2t-1) + 3(3t+4) = 4(4t+7) \\ & 10t - 5 + 9t + 12 = 16t + 28 \\ & 19t + 7 = 16t + 28 \\ & -16t - 7 \quad -16t - 7 \\ \hline & t = 7 \end{aligned}$$

$$\begin{aligned} (5) \quad & (x-5)(2x+3) \\ & 2x^2 + 3x - 10x - 15 \\ & 2x^2 - 7x - 15 \end{aligned}$$

$$(6) \quad \begin{aligned} & (x+8)^2 \\ & x^2 + 16x + 64 \end{aligned}$$

$$(7) \quad \begin{aligned} & x^2 - 25 \\ & (x-5)(x+5) \end{aligned}$$

$$\begin{aligned} (8) \quad & 2a^2 + 13a - 7 \\ & 2a^2 + 14a - 1a - 7 \\ & 2a(a+7) - 1(a+7) \\ & (2a-1)(a+7) \end{aligned}$$

$$\begin{aligned} (9) \quad & y^2 - 5y + 6 = 0 \\ & (y-2)(y-3) = 0 \\ & y = 2, 3 \end{aligned}$$

$$\begin{aligned} (10) \quad & (-5x^4)^3 \\ & (-5)^3 \times x^{12} \\ & = -125x^{12} \end{aligned}$$

$$(11) \quad \frac{12a^5b^6}{(2a^2b)^2}$$

$$\frac{12a^5b^6}{4a^4b^2} \Rightarrow 3ab^4$$

$$\textcircled{12} \quad \frac{500}{20} = 25$$

$$25(11) = 275 \text{ kg}$$

$$\textcircled{13} \quad (5, 6) \text{ and } (2, -3)$$
$$\frac{6+3x}{5-2} = \frac{9}{3} = 3$$

$$\textcircled{14} \quad x+2y=8$$
$$0+2y=8$$
$$y=4$$
$$(0, 4)$$

$$\textcircled{15} \quad \frac{12}{z+3} = \frac{15}{z+1}$$

$$12(z+1) = 15(z-3)$$

$$12z+12 = 15z-45$$

$$\frac{-12z+45}{-12z+45} = \frac{-12z+45}{-12z+45}$$

$$57 = 3z$$

$$z=19$$

$$\textcircled{16} \quad \left(\frac{y-1}{2} - \frac{y+1}{3} = 1 \right)$$

$$3(y-1) - 2(y+1) = 6$$

$$3y-3-2y-2=6$$

$$y-5=6$$

$$y=11$$

$$\textcircled{17} \quad \frac{24}{30} = \frac{x}{100}$$

$$\textcircled{18} \quad (-3y^{-3})^3$$
$$-27y^{-9} = \frac{-27}{y^9}$$

$$\textcircled{19} \quad \sqrt{175} = 5\sqrt{7}$$

$$\textcircled{20} \quad 3x+8 \geq x-10$$

$$\frac{-x+8}{2x+2} = \frac{-x+8}{2x+2}$$

$$2x \geq -2$$

$$x \geq -1$$

$$\textcircled{21} \quad -2x < 6$$
$$x > -3$$

$$(22) \quad 5x - 4y = 9$$

$$2(3x + 2y = 1)$$

$$6x + 4y = 2$$

$$5x - 4y = 9$$

$$\hline 11x = 11$$

$$x = 1$$

$$5(1) - 4y = 9$$

$$5 - 4y = 9$$

$$\underline{-5 \quad -5}$$

$$-4y = 4$$

$$y = -1$$

$$(1, -1)$$

$$(23) \quad \sqrt{27} - \sqrt{18} + \sqrt{50}$$

$$3\sqrt{3} - 3\sqrt{2} + 5\sqrt{2}$$

$$3\sqrt{3} + 2\sqrt{2}$$

$$(24) \quad (\sqrt{x} = 9)^2$$

$$x = 81$$