

Algebra 2 Practice Exam 1

1

$$18 \div 1.72 = 10.47 \checkmark$$

2

$$\frac{4 - \sqrt{2}}{\sqrt{2} + 3}$$

$$\frac{(4 - \sqrt{2})(\sqrt{2} - 3)}{(\sqrt{2} + 3)(\sqrt{2} - 3)}$$

$$\frac{7\sqrt{2} - 14}{-7} \checkmark$$

$$2 - \sqrt{2}$$

3

$$\sqrt{x^2 - 10x - 16} = x - 4$$

$$x^2 - 10x - 16 = (x - 4)^2$$

$$x^2 - 10x - 16 = x^2 - 8x + 16$$

$$-2x - 32 = 0$$

$$-2x = 32$$

$$x = -16 \checkmark$$

4

$$120 = 4k$$

$$k = 30$$

$$y = 30x$$

$$135 = 30x$$

$$x = \frac{9}{2} \text{ in}$$

5

$$8x^2 - 10x + 3$$

$$8x^2 - 4x - 6x + 3$$

$$4x(2x - 1) - 3(2x - 1)$$

$$(4x - 3)(2x - 1) \checkmark$$

$$\begin{aligned}
 6 \quad f(x) &= x^2 + 4x - 7 & g(x) &= 4x + 3 \\
 f(g(x)) &= (4x + 3)^2 + 4(4x + 3) - 7 \\
 &= 16x^2 + 24x + 9 + 16x + 12 - 7 \\
 &= 16x^2 + 40x + 14 \\
 &\therefore 2(8x^2 + 20x + 7) \checkmark
 \end{aligned}$$

$$\begin{aligned}
 7 \quad \log_2 \left(\frac{1}{8} \right) + \log_2 (16) \\
 \log_2 \left(\frac{1}{8} \times 16 \right) \\
 \log_2 (2) \\
 2^x = 2^1 \\
 x = 1 \checkmark
 \end{aligned}$$

$$\begin{aligned}
 8 \quad y &= \frac{x-2}{3} \\
 x &= \frac{y-2}{3} \\
 3x &= y-2 \\
 y &= 3x+2 \checkmark
 \end{aligned}$$

$$\begin{aligned}
 9 \quad y &= x^2 - x - 6 & y - 2x &= -2 \\
 & & y &= 2x - 2 \\
 x^2 - x - 6 &= 2x - 2 \\
 x^2 - 3x - 4 &= 0 \\
 (x-4)(x+1) &= 0 \\
 x-4 &= 0 & x+1 &= 0 \\
 x &= 4 \checkmark & x &= -1 \checkmark
 \end{aligned}$$

$$\begin{aligned}
 y &= 2(4) - 2 & y &= 2(-1) - 2 \\
 y &= 6 \checkmark & y &= -4 \checkmark \\
 \therefore (4, 6) & \checkmark & (-1, -4) & \checkmark
 \end{aligned}$$

10

$$\frac{3+5i}{3i^3+2i^6}$$

$$\frac{3+5i}{-3i-2}$$

$$\frac{(3+5i)(-3i+2)}{(-3i-2)(-3i+2)}$$

$$\frac{21+i}{-13}$$

11

$$d=st$$

$$d=20 \times 1.5$$

$$d=30 \text{ miles}$$

12

$$f(x) = x^4 + 2$$

$$x+2 \neq 0$$

$$x \neq -2$$

$$\frac{1}{x} \neq -2$$

$$\frac{x}{1} \neq -\frac{1}{2}$$

$$x \neq -\frac{1}{2}$$

$$g(x) = \frac{1}{x}$$

$$x \neq 0$$

$$\therefore x \neq 0, x \neq -\frac{1}{2}$$

100%







