Key

10/12 REVIEW FOR UNIT 2 EXAM

Again, this is NOT homework. However, all of these questions will prepare you for the Unit 2 exam. I will post solutions on Monday.

1. What is the solution set for x in the equation below?

$$\sqrt{x+1} - 1 = x$$

Check 1:
$\sqrt{2} - 1 \stackrel{?}{=} 1$ no!

Check -1:
$\sqrt{-1+1} - 1 \stackrel{?}{=} -1$
$-1 = -1$ ✓ yes!

1) $\{1\}$
2) $\{0\}$
3) $\{-1, 0\}$
4) $\{0, 1\}$

$x^2 + ax + bx + ab$

2. The expression $(x+a)(x+b)$ can *not* be written as

$ax + ab + x^2 + bx$ ✓
$x^2 + ax + bx + ab$ ✓

1) $a(x+b) + x(x+b)$
2) $x^2 + abx + ab$
3) $x^2 + (a+b)x + ab$
4) $x(x+a) + b(x+a)$
$x^2 + ax + bx + ab$ ✓

3. Determine the solutions to $x + 3 - \frac{4}{x-1} = 5$ in simplest radical form.

$+\frac{4}{x-1}$ | $+\frac{4}{x-1}$

$x + 3 = 5 + \frac{4}{x-1}$
$-5 \quad -5$

$x - 2 = \frac{4}{x-1}$

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

$x^2 - 3x + 2 = 4$
$x^2 - 3x - 2 = 0$
$x = \frac{3 \pm \sqrt{(-3)^2 - 4(1)(-2)}}{2(1)}$

$x = \frac{3 \pm \sqrt{17}}{2}$

4. Completely factor the following expression: $x^2 + 3xy + 3x^3 + y$

$(3x^3 + x^2) + (3xy + y)$
$x^2(3x+1) + y(3x+1)$
$(x^2+y)(3x+1)$

5. Elizabeth found the product of (4 + 2i) and (5 – i). What was her answer in simplest form?

$(4+2i)(5-i)$

$20 - 4i$

$+10i - 2i^2$

$20 + 6i + 2 = \boxed{22 + 6i}$

6. Given: $f(x) = 2x^2 + x - 3$ and $g(x) = x - 1$

Express $f(x) \bullet g(x) - [f(x) + g(x)]$ as a polynomial in standard form.

$(2x^2 + x - 3)(x - 1) - [2x^2 + x - 3 + x - 1]$

$2x^3 - 2x^2$

$+x^2 - x$

$-3x + 3$

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

$2x^3 - 1x^2 - 4x + 3$

$-2x^2 - 2x + 4$

$\boxed{2x^3 - 3x^2 - 6x + 7}$