Math III

Name_____ ID: 1

Basic Skills 1

Date_____ Period____

Simplify each sum.

1) $\left(-3 + 4n^4 - n^3\right) + \left(7n^3 - 8n^2 - 8\right)$

$-3 + 4n^4 - n^3 + 7n^3 - 8n^2 - 8$

$$4n^4 + 6n^3 - 8n^2 - 11$$

Simplify each difference.

2) $\left(2p^2 + 8p^3 - 8p\right) - \left(5p + p^2 - 6p^3\right)$

$2p^2 + 8p^3 - 8p - 5p - p^2 + 6p^3$

$$14p^3 + p^2 - 13p$$

Find each product.

3) $(x + 2)(5x + 2)$

$5x^2 + 2x + 10x + 4$

$$\boxed{5x^2 + 12x + 4}$$

Factor each completely. → difference of two squares $A^2 - B^2 \rightarrow (A-B)(A+B)$

4) $9r^2 - 1$

$(3r)^2 - 1^2$

$$\boxed{(3r - 1)(3r + 1)}$$

Solve each equation.

5) $-3(3 - 4x) = -57$

$-9 + 12x = -57$

$+9 +9$

$12x = -48$

$\frac{12x}{12} = \frac{-48}{12}$

$\boxed{x = -4}$

6) $-3(x + 2) = -6 - 4x$

$-3x - 6 = -6 - 4x$

$+6 +6$

$-3x = -4x$

$+4x +4x$

$\boxed{x = 0}$

Solve each equation by factoring.

7) $1p^2 + 1p - 2 = 0$

$(x+2)(x-1) = 0$

$2 \diagdown \begin{matrix} -2 \\ -1 \\ 1 \end{matrix}$

$x+2=0 \quad x-1=0$

$-2\ -2 \quad +1\ +1$

$\boxed{x = -2} \quad \boxed{x = 1}$

8) $3v^2 + 13v - 10 = 0$

$v^2 + 13x - 30 = 0$

$(v + 15)(v - 2) = 0$

$\dfrac{}{3} \quad \dfrac{}{3}$

$(v+5)(3v-2) = 0$

$15 \diagdown \begin{matrix} -30 \\ -2 \\ 13 \end{matrix}$

$v + 5 = 0$

$\boxed{x = -5}$

$3v - 2 = 0$

$\boxed{x = \dfrac{2}{3}}$

Solve each equation by taking square roots.

9) $64x^2 + 8 = 9$

$$\underline{-8 \quad -8}$$

$$\frac{64x^2 = 1}{64 \quad \overline{64}}$$

$$\sqrt{x^2} = \sqrt{\frac{1}{64}}$$

$$x = \pm\sqrt{\frac{1}{64}}$$

$$x = \pm\frac{\sqrt{1}}{\sqrt{64}}$$

$$\boxed{x = \pm\frac{1}{8}}$$

Solve each equation with the quadratic formula.

10) $3v^2 - v - 6 = 0$

$A = 3 \quad B = -1 \quad C = -6$

$$\frac{-B \pm \sqrt{B^2 - 4AC}}{2A}$$

$$\frac{-(-1) \pm \sqrt{(-1)^2 - 4(3)(-6)}}{2(3)}$$

$$\boxed{\frac{1 \pm \sqrt{73}}{6}}$$