Algebra 1 Name_____ ID: 1

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Unit 3B Test Review

Date_____ Period____

Factor the common factor out of each expression.

1) $5r^4 - 50r^3 - 50r^2$

$5r^2(r^4 - 10r - 10)$

2) $-28b^6 - 20b^4 - 16b^3$

$-4b^3(7b^3 + 5b + 4)$

Solve each equation by factoring. *set each equal to zero

3) $r^2 + 2r - 3 = 0$

$(r+3)(r-1) = 0$

$r+3=0 \quad r-1=0$

$\boxed{r = -3, 1}$

4) $n^2 + 4n = 0$

$n(n+4) = 0$

$n=0 \quad n+4=0$

$\boxed{n = 0, -4}$

5) $x^2 + 4x - 26 = -5$

$x^2 + 4x - 21 = 0$

$(x+7)(x-3) = 0$

$\boxed{x = -7, 3}$

6) $r^2 - 3r = -2$

$r^2 - 3r + 2 = 0$

$(r-2)(r-1) = 0$

$\boxed{r = 1, 2}$

7) $7a^2 + 22a + 3 = 0$

21

$\frac{21}{21} \times \frac{1}{1} = 21$

$\frac{21}{21} + \frac{1}{1} = 22$

$(7a^2 + 21a)(1a + 3) = 0$

$7a(a+3) 1(a+3) =$

$(7a+1)(a+3) = 0$

$\boxed{a = -\frac{1}{7} \quad a = -3}$

8) $2x^2 - 5x - 3 = 0$

-6

$\frac{-6}{-6} \times \frac{1}{1} = -6$

$-6 + 1 = -5$

$(2x^2 - 6x)(x - 3) = 0$

$2x(x-3) 1(x-3) = 0$

$(2x+1)(x-3) = 0$

$\boxed{x = -\frac{1}{2}, 3}$

Solve each equation by taking square roots.

*Solve for X.

9) $9v^2 = 81$

$\frac{9v^2}{9} = \frac{81}{9}$

$\sqrt{v^2} = \sqrt{9}$

$\boxed{v = \pm 3}$

10) $v^2 + 1 = 101$

$\sqrt{v^2} = \sqrt{100}$

$\boxed{v = \pm 10}$

9

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11) $8x^2 + 4 = 84$

$8x^2 = 80$

$\sqrt{x^2} = \sqrt{10}$

$\boxed{x = \pm\sqrt{10}}$

12) $5n^2 + 1 = 96$

$\frac{5n^2}{5} = \frac{95}{5}$

$\sqrt{n^2} = \sqrt{19}$

$\boxed{n = \pm\sqrt{19}}$

13) $81b^2 + 1 = 2$

$\frac{81b^2}{81} = \frac{1}{81}$

$\sqrt{b^2} = \sqrt{\frac{1}{81}} = \frac{\sqrt{1}}{\sqrt{81}} = \frac{1}{9}$

$\boxed{b = \pm\frac{1}{9}}$

14) $10b^2 - 4 = 476$

$\frac{10b^2}{10} = \frac{480}{10}$

$\sqrt{b^2} = \sqrt{48}$

$\boxed{b = \pm 4\sqrt{3}}$

$\sqrt{48}$

$\sqrt{16}\sqrt{3}$

$4\sqrt{3}$

Solve each equation by completing the square.

15) $m^2 - 8m - 84 = 0$

$m^2 - 8m + \underline{16} = 84 + \underline{16}$

$\sqrt{(m-4)^2} = \sqrt{100}$

$m - 4 = \pm 10$

$m = 4 \pm 10$

$\boxed{m = -6, 14}$

16) $n^2 - 6n - 24 = 0$

$n^2 - 6n + \underline{9} = 24 + \underline{9}$

$\sqrt{(n-3)^2} = \sqrt{33}$

$n - 3 = \pm\sqrt{33}$

$\boxed{n = 3 \pm \sqrt{33}}$

17) $r^2 - 20r + 89 = -10$

$r^2 - 20r + \underline{100} = -99 + 100$

$\sqrt{(r-10)^2} = \sqrt{1}$

$r - 10 = \pm 1$

$r = 10 \pm 1$

$\boxed{r = 9, 11}$

18) $x^2 - 8x - 87 = -7$

$x^2 - 8x + \underline{16} = 80 + \underline{16}$

$\sqrt{(x-4)^2} = \sqrt{96}$

$x - 4 = \pm 4\sqrt{6}$

$\boxed{x = 4 \pm 4\sqrt{6}}$

96

$\sqrt{16}\sqrt{6}$

19) $a^2 - 20a + 59 = 8$

$a^2 - 20a + \underline{100} = -51 + 100$

$\sqrt{(a-10)^2} = \sqrt{49}$

$a - 10 = \pm 7$

$+10 \quad +10$

$a = 10 \pm 7$

$\boxed{a = 3, 17}$

20) $b^2 - 4b - 53 = -4$

$b^2 - 4b + \underline{4} = 49 + \underline{4}$

$\sqrt{(b-2)^2} = \sqrt{53}$

$b - 2 = \pm\sqrt{53}$

$\boxed{b = 2 \pm \sqrt{53}}$

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