Chapter 10.5-10.7 Test Review

Name: KEY

***Section 10.5**: Intro to Factoring*

Factor out the greatest common factor.

1.) $3x + 18$

$3(x+6)$

2.) $-2c + 10$

$-2(c-5)$

3.) $5x - 10x^2$

$5x(1-2x)$

4.) $3x^5 - 12x^2$

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

5.) $2x^3 + x^2$

$x^2(2x+1)$

6.) $10x^3 - 12x^2 + 4x$

$2x(5x^2-6x+2)$

Factor by grouping.

7.) $x^4 + 4x^3 + 2x + 8$

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

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

8.) $2x^3 + x^2 + 2x + 1$

$x^2(2x+1) + 1(2x+1)$

$(2x+1)(x^2+1)$

9.) $3x^3 - 6x^2 - x + 2$

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

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

10.) $5x^5 + x^3 + 20x^2 + 4$

$x^3(5x^2+1) + 4(5x^2+1)$

$(5x^2+1)(x^3+4)$

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Section 10.6: *Factoring $x^2 + bx + c$ and Factoring $ax^2 + bx + c$*

Factor the trinomials.

13.) $x^2 - 2x - 3$

$1 \cdot -3 = -3$; $-3 + 1 = -2$

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

$x(x-3) + 1(x-3)$

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

14.) $3x^2 + 16x + 5$

$3 \cdot 5 = 15$; $15 + 1 = 16$

$3x^2 + 15x + 1x + 5$

$3x(x+5) + 1(x+5)$

$\boxed{(x+5)(3x+1)}$

15.) $5x^2 + 2x - 3$

$5 \cdot -3 = -15$; $5 + -3 = 2$

$5x^2 + 5x - 3x - 3$

$5x(x+1) - 3(x+1)$

$\boxed{(x+1)(5x-3)}$

16.) $6x^2 + 5x + 1$

$6 \cdot 1 = 6$; $3 + 2 = 5$

$6x^2 + 3x + 2x + 1$

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

$\boxed{(2x+1)(3x+1)}$

Solve the equation by factoring.

17.) $2x^2 + 19x - 10 = 0$

$2 \cdot -10 = -20$; $20 + -1 = 19$

$2x^2 + 20x - 1x - 10 = 0$

$2x(x+10) - 1(x+10) = 0$

$(x+10)(2x-1) = 0$

$x + 10 = 0$

$\boxed{x = -10}$

$2x - 1 = 0$

$2x = 1$

$\boxed{x = \frac{1}{2}}$

18.) $x^2 - x = 20$

$1 \cdot -20 = -20$; $-5 + 4 = -1$

$x^2 - x - 20 = 0$

$x^2 - 5x + 4x - 20 = 0$

$x(x-5) + 4(x-5) = 0$

$(x-5)(x+4) = 0$

$x - 5 = 0$

$\boxed{x = 5}$

$x + 4 = 0$

$\boxed{x = -4}$

19.) $x^2 - 6x + 9 = 0$

$1 \cdot 9 = 9$; $-3 + -3 = -6$

$x^2 - 3x - 3x + 9 = 0$

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

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

$x - 3 = 0$

$\boxed{x = 3}$

20.) $3 = 5x^2 + 2x$

$-3 \quad -3$

$0 = 5x^2 + 2x - 3$

$5 \cdot -3 = -15$; $5 + -3 = 2$

$0 = 5x^2 + 5x - 3x - 3$

$0 = 5x(x+1) - 3(x+1)$

$0 = (x+1)(5x-3)$

$x + 1 = 0$

$\boxed{x = -1}$

$5x - 3 = 0$

$5x = 3$

$\boxed{x = \frac{3}{5}}$

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Section 10.7: *Factoring Special Products*

Factor the expression.

21.) $x^2 - 25$

$(x+5)(x-5)$

22.) $x^2 - 49$

$(x+7)(x-7)$

23.) $25x^2 - 16$

$(5x+4)(5x-4)$

24.) $100x^2 - 36$

$(10x+6)(10x-6)$

Solve the equation by factoring.

25.) $4x^2 - 9 = 0$

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

$2x+3=0$ or $2x-3=0$

$2x=-3$ $\quad$ $2x=3$

$x=-\frac{3}{2}$ $\quad$ $x=\frac{3}{2}$

26.) $x^2 = 4$

$x^2-4=0$

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

$x+2=0$ or $x-2=0$

$x=-2$ $\quad$ $x=2$

27.) $9x^2 - 16 = 0$

$(3x+4)(3x-4)=0$

$3x+4=0$ or $3x-4=0$

$3x=-4$ $\quad$ $3x=4$

$x=-\frac{4}{3}$ $\quad$ $x=\frac{4}{3}$

28.) $x^2 - 36 = 0$

$(x+6)(x-6)=0$

$x+6=0$ or $x-6=0$

$x=-6$ $\quad$ $x=6$

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