Unit 4 Homefun Assignments

Homefun Day 1:

Factor or solve the following quadratics. (Be careful!!! Only solve if there is an = sign.)

1) $36x - 54$

18(2x-3)

2) $12y^2 - 18y + 6$

$6(2y^2-3y+1)$

3) $16y^3 + 24y^2 - 48y$

$8y(2y^2+3y-6)$

4) $28x^3y^4 + 14xy^2$

$14xy^2(2x^2y^2+1)$

5) $6x^2 + 12x = 0$

x=0, -2

6) $9a^2 - 9a = 0$

a=0, 1

7) $x^2 = 3x$

x=0, 3

8) $3a^2 + 5a = 2a$

a=0, -1

9) $4x^2 - 8x + 3x - 6$

(4x+3)(x-2)

10) $5a^2 - 10ab + ab - 2b^2$

(5a+b)(a-2b)

11) $15ab + 5b^2 - 15a - 2b$

Prime

12) $18m^2 + 7m = 3m$

m=0, -2/9

Homefun Day 2:

Factor or solve the following quadratics. (Be careful!!! Only solve if there is an = sign.)

1) $2r^2 - 12r + 10$

2(r-1)(r-5)

2) $6c^2 + 7c + 2$

(3c+2)(2c+1)

3) $8r^2 - 6r - 5$

(5r-4)(2r+1)

4) $7c^2 - 15c + 2$

(c-2)(5c-3)

5) $3x^2 + 7x - 20$

(x+4)(3x-5)

6) $3p^2 - 12p - 63$

3(p-7)(p+3)

7) $12x^2 - 56x - 20$

(x-5)(3x+1)

8) $2x^2 + 4x - 30$

2(x+5)(x+3)

9) $-4z^2 + 13z + 16$

Prime

10) $2y^2 + 3y - 35$

(x+5)(2x-7)

11) $45x^2 - 5x$

5x(9x-1)

12) $x^2 - 10x - 24$

(x-12)(x+2)

Homefun Day 3:

Factor or solve the following quadratics. (Be careful!!! Only solve if there is an = sign.)

1) $4x^2 + 17x - 15 = 0$

X=5, 3/4

2) $-8x^2 - 15x + 2 = 0$

X=-2,, 1/8

3) $6x^2 - 48x - 54 = 0$

X=-1, 9

4) $3x^2 + 9x - 6 = 0$

PRIME

5) $2x^2 - 16x - 18 = 0$

X= -1, 9

6) $4y^2 = 12y + 7$

y= -1/2, 7/2

7) $3m^2 + 12m - 36$

(m+6)(m-2)

8) $4x^2 - 12x + 5 = 0$

X= 1/2, 5/2

9) $8x^2 + 2x - 3 = 0$

X= 1/2, -3/4

10) $-x^2 + 4x = -12$

X= -2, 6

11) $-4h^2 + 11h + 3 = 0$

h= -1/4, 3

12) $6z^2 + 11z + 4 = 0$

z= -4/3, -1/2

Homefun Day 4:

Factor or solve the following quadratics. (Be careful!!! Only solve if there is an = sign.)

1) $z^2 - 14z + 40$

(z-4)(z-10)

2) $y^2 - 5y - 24$

(y-8)(y+3)

3) $a^2 + 13a + 36$

(a+4)(a+9)

4) $m^2 + 8m - 65$

(m+13)(m-5)

5) $z^2 + 16z + 64$

$(z+8)^2$

6) $z^2 - 36$

(z+6)(z-6)

7) $x^2 + 6x + 5$

(x+5)(x+1)

8) $x^2 + 11x + 24 = 0$

(x+8)(x+3)

9) $n^2 - 5n = 14$

(n-7)(n+2)

10) $x^2 - 6x = 0$

x = 0, 6

11) $2n^2 + 12n + 16 = 0$

n = -2, -4

12) $5z^2 + 60z$

5z(z+12)

Homefun Day 5:

Solve the following using square roots.

1) $\mathbf{3x^2 = 108}$

x = 6, -6

2) $\mathbf{-3x^2 + 8 = 56}$

$\pm 4i$

3) $\mathbf{4x^2 + 3 = 47}$

$\pm\sqrt{11}$

4) $(x+2)^2 = -25$

$-2 \pm 5i$

5) $3x^2 - 12 = 12$

$\pm 2\sqrt{2}$

6) $(x+1)^2 + 14 = 5$

$-1 \pm 3i$

7) $9x^2 - 12 = 4$

$x = \pm 4/3$

8) $-4(x+2)^2 - 8 = 0$

$-2 \pm i\sqrt{2}$

9) $\frac{(3x-3)^2}{5} - 20 = 0$

x = 7/3, 13/3

10) $4(2x+1)^2 + 64 = 0$

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

11) $\frac{(4x-1)^2}{2} + 3 = -7$

$x = \frac{1 \pm 2i\sqrt{5}}{4}$

12) $\frac{(x-3)^3}{3} - 9 = 0$

x = 6

Homefun Day 6:

Solve the following quadratic equations using the quadratic formula.

1) $\boldsymbol{m^2 + 3 = 7m}$

$m = \frac{7 \pm \sqrt{37}}{2}$

2) $\boldsymbol{3x^2 + 2x - 3 = 0}$

$x = \frac{-1 \pm \sqrt{10}}{3}$

3) $\boldsymbol{x^2 - 6x + 10 = 0}$

$x = 3 \pm i$

4) $3y^2 + 7y + 1 = 2y - 3$

$y = \frac{-5 \pm i\sqrt{23}}{6}$

5) $3x^2 = 12x$

x = 0, 4

6) $\boldsymbol{2w^2 + 3w = 1 - 2w^2}$

w = -1, ¼

7) $10x^2 - 8x + 3 = 0$

$x = \frac{4 \pm i\sqrt{14}}{10}$

8) $\boldsymbol{5x^2 + 12 = 12x}$

$x = \frac{6 \pm 2i\sqrt{6}}{5}$

Unit 4 Review:

Factor the expressions completely.

1. $x^2 + 8x - 48$
(x + 12)(x - 4)

2. $2x^2 - 10x + 3x - 15$
(2x + 3)(x - 5)

3. $x^2 - 49y^2$
(x - 7y)(x + 7y)

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

5. $-36x^2y^3z^{12} + 72x^3yz^{10}$
$-36x^2yz^{10}(y^2z^2 - 2x)$

6. $x^2 - 24$
Prime

7. $-2x^3 - 28x^2 - 98x$
$-2x(x^2 + 7x + 49)$

8. $16x^2 - 24xy + 9y^2$
(4x + 3y)(4x – 3y)

9. $12x^2 - 22x + 6$
2(2x – 3)(3x – 1)

Solve the equations.

10. $x^2 + 5x - 14 = 0$
x = 2, -7

11. $x^2 = 6x$
x = 0, 6

12. $2x^2 - 24 = -36$
$x = \pm i\sqrt{6}$

13. $2(x+3)^2 - 7 = 15$
$x = -3 \pm \sqrt{11}$

14. $27n^5 - 72n^4 = 0$
m = 0, 8/3

15. $\frac{1}{2}x^2 + 20 = 38$
x = ± 6

16. $3(x+2)^2 = 27$
x = 1, -5

17. $4(x-6)^2 + 5 = 4$
$x = 6 \pm \frac{1}{2}i$

Find the zeros of the function.

18. $y = 81x^2 - 16$
$x = \pm\frac{4}{9}$

19. $f(x) = 4x^2 + 18x + 18$
$x = -3, -\frac{3}{2}$

20. $y = x^2 - 7x + 2x - 14$
$x = -2,7$

Use the quadratic formula to solve the equation.

21. $x^2 + 6x = 10$
$x = -3 \pm \sqrt{19}$

22. $2c^2 - 12c + 6 = 0$
$c = 3 \pm \sqrt{6}$

23. $x^2 - x + 1 = 0$
$x = \frac{1 \pm i\sqrt{3}}{2}$

24. $3x^2 - 2x = 3$
$x = \frac{1 \pm \sqrt{10}}{3}$

25. $x^2 + 10 = 6x$
$x = 3 \pm i$

26. $4x^2 + 1 = 4x$
x = ½, Double Root

27. The polynomial $x^2 + 11x + 30$ is factorable. One factor is $(x + 6)$, what is the other factor?
(x+5)

28. What is the **sum** of the solutions of $x^2 + 8x = 84$
-8

29. Select **all** of the expressions that are equivalent to $-x^2 + 3x + 10$.

II, III, IV

I.	$(x+5)(x-2)$
II.	$-(x+2)(x-5)$
III.	$(-x-2)(x-5)$
IV.	$(x+2)(5-x)$