

CCGPS Analytic Geometry Star Method (Lizzie Method) Factoring Day 2

Examples: Factor each polynomial and solve

a. $11x^2 - 12x + 1 = 0$

b. $5x^2 - 2x - 7 = 0$

c) $6x^2 - 48x - 120 = 0$

d) $4x^2 - 2x = 56$

e) $4x^3 - 15x^2 = 20x$

f) $14x^3 - 2x = -3x^2$

Homework Factoring Day 2 January 14, 2015 (Wed)

Factor each polynomial and solve

1. $10x^2 - 15x - 10 = 0$

2. $3x^2 - 45x = -168$

3. $2x^2 + 16x - 40 = 0$

4. $56x^2 + 24 = 77x$

5. $36x^2 = -42x + 120$

6. $25x^2 - 18 = 15x$

7. $x^2 = -4x$

8. $30x^2 = -95x + 35$

Examples: Factor each polynomial and solve

a. $11x^2 - 12x + 1 = 0$

GCF: 1

$a = 11$
 $b = -12$
 $c = 1$

-1	11
11	11

$\frac{-1}{11} x \frac{11}{11} = 11$
 $\frac{-1}{11} + \frac{11}{11} = -12$

$(x - \frac{1}{11})(x - \frac{11}{11}) = 0$
 $(x - \frac{1}{11})(x - 1) = 0$
 $(11x - 1)(x - 1) = 0$

$11x - 1 = 0$	$x - 1 = 0$
$11x = 1$	$x = 1$
$\frac{11}{11} = \frac{1}{11}$	$x = 1$
$x = \frac{1}{11}$	

4, 14
1, 56
2, 28
7, 8

c) $6x^2 - 48x - 120 = 0$

GCF: 6

$6(x^2 - 8x - 20) = 0$
 $a = 1$
 $b = -8$
 $c = -20$

2	-20
1	-10

$\frac{2}{1} x \frac{-10}{1} = -20$
 $\frac{2}{1} + \frac{-10}{1} = -8$

$6(x + 2)(x - 10) = 0$
 $x = -2, x = 10$

d) $4x^2 - 2x - 56 = 0$

GCF: 2

$a = 2$
 $b = -1$
 $c = -28$

$2(2x^2 - x - 28) = 0$
 $\frac{7}{2} x \frac{-8}{2} = -56$
 $\frac{7}{2} + \frac{-8}{2} = -1$

$2(x + \frac{7}{2})(x - \frac{8}{2}) = 0$
 $2(x + \frac{7}{2})(x - 4) = 0$
 $2(2x + 7)(x - 4) = 0$
 $x = \frac{7}{2}, 4$

e) $4x^3 - 15x^2 = 20x$

$4x^3 - 2x^2 = 20x$
 $4x^3 - 2x^2 - 20x = 0$

GCF: $2x$

$a = 2$
 $b = -1$
 $c = -10$

4	-5
2	2

$\frac{4}{2} x \frac{-5}{2} = -20$
 $\frac{4}{2} + \frac{-5}{2} = -1$

$2x(x + \frac{4}{2})(x - \frac{5}{2}) = 0$
 $2x(x + 2)(x - \frac{5}{2}) = 0$
 $2x(x + 2)(2x - 5) = 0$

f) $14x^3 - 2x = -3x^2$

$2x = 0$	$x + 2 = 0$	$2x - 5 = 0$
$x = 0$	$x = -2$	$x = \frac{5}{2}$

1, 20
2, 10
4, 5

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Factor each polynomial and solve

1. $10x^2 - 15x - 10 = 0$

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

$$5(2x + 1)(x - 2) = 0$$

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

2. $3x^2 - 45x = -168$

$$3x^2 - 45x + 168 = 0$$

$$3(x^2 - 15x + 56) = 0$$

$$3(x - 7)(x - 8) = 0$$

$$x = 7, 8$$

3. $2x^2 + 16x - 40 = 0$

$$2(x^2 + 8x - 20) = 0$$

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

$$x = -10, 2$$

4. $56x^2 + 24 = 77x$

~~$$56x^2 - 77x + 24 = 0$$~~

5. $36x^2 = -42x + 120$

$$36x^2 + 42x - 120 = 0$$

$$6(6x^2 + 7x - 20) = 0$$

$$6(2x + 5)(3x - 4) = 0$$

$$x = -\frac{5}{2}, \frac{4}{3}$$

6. $25x^2 - 18 = 15x$

$$25x^2 - 15x - 18 = 0$$

~~$$5(5x - 6)(5x + 3) = 0$$~~

~~$$x = \frac{6}{5}, -\frac{3}{5}$$~~

7. $x^2 = -4x$

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

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

$$x = 0, x = -4$$

8. $30x^2 = -95x + 35$

$$30x^2 + 95x - 35 = 0$$

$$5(6x^2 + 19x - 7) = 0$$

$$5(3x - 1)(2x + 7) = 0$$

$$x = \frac{1}{3}, -\frac{7}{2}$$