

ICM

Name _____ ID: 1

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Factoring- STATION 1

Date _____ Period _____

Factor each completely.

1) $125x^2 + 400xy + 320y^2$

2) $360x^2 + 600xy + 250y^2$

3) $500v^3 - 1100v^2u + 605vu^2$

4) $338x^2v - 8y^2v$

5) $1728x^2 + 1452y^2$

6) $1573xa^2 - 2288xab + 832xb^2$

7) $84x^2 - 36xy + 6y^2$

8) $6x^2 - 384y^2$

9) $8x^2 - 1152y^2$

10) $225x^2 - 144y^2$

Answers to Factoring- STATION 1 (ID: 1)

- 1) $5(5x + 8y)^2$ 2) $10(6x + 5y)^2$ 3) $5v(10v - 11u)^2$
4) $2v(13x + 2y)(13x - 2y)$ 5) $12(144x^2 + 121y^2)$ 6) $13x(11a - 8b)^2$
7) $6(3x - y)^2$ 8) $6(x + 8y)(x - 8y)$ 9) $8(x + 12y)(x - 12y)$
10) $9(5x + 4y)(5x - 4y)$

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Factoring- STATION 2

Date _____ Period ____

Factor each completely.

1) $x^6 - 216y^6$

2) $xm^6 + xn^6$

3) $3x^7 + 648xy^6$

4) $2x^7m - 54xmy^6$

5) $yx^6 - 27y^7$

6) $u^6 + 64v^6$

7) $4ba^6 + 864b^7$

8) $m^6 + 216n^6$

9) $3m^7x - 24mxn^6$

10) $m^6 - n^6$

Answers to Factoring- STATION 2 (ID: 1)

- 1) $(x^2 - 6y^2)(x^4 + 6x^2y^2 + 36y^4)$
- 2) $x(m^2 + n^2)(m^4 - m^2n^2 + n^4)$
- 3) $3x(x^2 + 6y^2)(x^4 - 6x^2y^2 + 36y^4)$
- 4) $2xm(x^2 - 3y^2)(x^4 + 3x^2y^2 + 9y^4)$
- 5) $y(x^2 - 3y^2)(x^4 + 3x^2y^2 + 9y^4)$
- 6) $(u^2 + 4v^2)(u^4 - 4u^2v^2 + 16v^4)$
- 7) $4b(a^2 + 6b^2)(a^4 - 6a^2b^2 + 36b^4)$
- 8) $(m^2 + 6n^2)(m^4 - 6m^2n^2 + 36n^4)$
- 9) $3mx(m^2 - 2n^2)(m^4 + 2m^2n^2 + 4n^4)$
- 10) $(m - n)(m + n)(m^4 + m^2n^2 + n^4)$

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Factoring- STATION 3

Date _____ Period _____

Factor each.

1) $x^8 - 34x^4 + 225 = 0$

2) $x^6 + 63x^3 - 64 = 0$

3) $x^6 - 26x^3 - 27 = 0$

4) $x^7 + 9x^4 + 8x = 0$

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

6) $x^8 - 64x^2 = 0$

7) $x^6 + 28x^3 + 27 = 0$

8) $x^6 - 1 = 0$

9) $x^7 - x = 0$

10) $x^8 - 26x^4 + 25 = 0$

Answers to Factoring- STATION 3 (ID: 1)

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

3) $(x + 1)(x^2 - x + 1)(x - 3)(x^2 + 3x + 9) = 0$

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

7) $(x + 1)(x^2 - x + 1)(x + 3)(x^2 - 3x + 9) = 0$

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

2) $(x - 1)(x^2 + x + 1)(x + 4)(x^2 - 4x + 16) = 0$

4) $x(x + 2)(x^2 - 2x + 4)(x + 1)(x^2 - x + 1) = 0$

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

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

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

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Factoring- STATION 4

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Factor each completely.

1) $42xy - 30x^2 + 49y - 35x$

2) $mn - 3m - 4n + 12$

3) $6xy + 21x + 18y + 63$

4) $15uv - 25u + 24v^2 - 40v$

5) $25xy + 20x^2 + 30y + 24x$

6) $3xy - 5x + 24y - 40$

7) $35xy - 20x + 105y - 60$

8) $15xy - 35x^2 + 24y - 56x$

9) $12xy + 15x - 32y - 40$

10) $7xy + 4x + 21y + 12$

Answers to Factoring- STATION 4 (ID: 1)

1) $(6x + 7)(7y - 5x)$

5) $(5x + 6)(5y + 4x)$

9) $(3x - 8)(4y + 5)$

2) $(m - 4)(n - 3)$

6) $(x + 8)(3y - 5)$

10) $(x + 3)(7y + 4)$

3) $3(x + 3)(2y + 7)$

7) $5(x + 3)(7y - 4)$

4) $(5u + 8v)(3v - 5)$

8) $(5x + 8)(3y - 7x)$

Factoring- STATION 5

Date _____ Period _____

Factor each completely.

1) $35n^2 + 65n + 30$

2) $15x^2 + 48x + 36$

3) $7v^2 + 34v - 5$

4) $36r^2 + 36r - 280$

5) $50b^3 + 105b^2 - 50b$

6) $3x^4 - 5x^2 - 50$

7) $7a^4 + 72a^2 + 20$

8) $3x^4 + 11x^2 - 20$

9) $7x^5 - 43x^3 + 40x$

10) $7x^5 - 46x^3 + 24x$

Answers to Factoring- STATION 5 (ID: 1)

- | | | | |
|-----------------------|------------------------|-----------------------|----------------------|
| 1) $5(7n+6)(n+1)$ | 2) $3(5x+6)(x+2)$ | 3) $(7v-1)(v+5)$ | 4) $4(3r-7)(3r+10)$ |
| 5) $5b(2b+5)(5b-2)$ | 6) $(3x^2+10)(x^2-5)$ | 7) $(7a^2+2)(a^2+10)$ | 8) $(3x^2-4)(x^2+5)$ |
| 9) $x(7x^2-8)(x^2-5)$ | 10) $x(7x^2-4)(x^2-6)$ | | |

Station 6

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Solving by Factoring

Factor each and find all roots.

1) $x^4 - 36 = 0$

2) $x^7 - 64x = 0$

3) $x^3 - 27 = 0$

4) $x^3 - 5x^2 - 2x + 10 = 0$

5) $x^6 + 2x^4 - 9x^2 - 18 = 0$

6) $x^3 + 1 = 0$

7) $x^4 + 7x^2 - 18 = 0$

8) $x^5 - x^3 - 56x = 0$

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

10) $x^8 - 29x^4 + 100 = 0$

Answers to Solving by Factoring

- 1) Factors to: $(x^2 + 6)(x^2 - 6) = 0$
 Roots: $\{i\sqrt{6}, -i\sqrt{6}, \sqrt{6}, -\sqrt{6}\}$
- 2) Factors to: $x(x-2)(x^2+2x+4)(x+2)(x^2-2x+4) = 0$
 Roots: $\{0, 2, -1+i\sqrt{3}, -1-i\sqrt{3}, -2, 1+i\sqrt{3}, 1-i\sqrt{3}\}$
- 3) Factors to: $(x-3)(x^2+3x+9) = 0$
 Roots: $\left\{3, \frac{-3+3i\sqrt{3}}{2}, \frac{-3-3i\sqrt{3}}{2}\right\}$
- 4) Factors to: $(x-5)(x^2-2) = 0$
 Roots: $\{5, \sqrt{2}, -\sqrt{2}\}$
- 5) Factors to: $(x^2+2)(x^2-3)(x^2+3) = 0$
 Roots: $\{i\sqrt{2}, -i\sqrt{2}, \sqrt{3}, -\sqrt{3}, i\sqrt{3}, -i\sqrt{3}\}$
- 6) Factors to: $(x+1)(x^2-x+1) = 0$
 Roots: $\left\{-1, \frac{1+i\sqrt{3}}{2}, \frac{1-i\sqrt{3}}{2}\right\}$
- 7) Factors to: $(x^2-2)(x^2+9) = 0$
 Roots: $\{\sqrt{2}, -\sqrt{2}, 3i, -3i\}$
- 8) Factors to: $x(x^2-8)(x^2+7) = 0$
 Roots: $\{0, 2\sqrt{2}, -2\sqrt{2}, i\sqrt{7}, -i\sqrt{7}\}$
- 9) Factors to: $(x+2)(x+1) = 0$
 Roots: $\{-2, -1\}$
- 10) Factors to: $(x^2-5)(x^2+5)(x^2-2)(x^2+2) = 0$
 Roots: $\{\sqrt{5}, -\sqrt{5}, i\sqrt{5}, -i\sqrt{5}, \sqrt{2}, -\sqrt{2}, i\sqrt{2}, -i\sqrt{2}\}$