Name:

Date:

School:

Facilitator:

**6.01 Solving Quadratic Equations by Completing the Square**

**Determine the value of *c* for each of the following quadratic expressions. Show your work in the space provided.**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. | *x*2 – 14*x* + *c* | | | *c* = | | | | |
|  | **Show work here** | | | | | | | |
|  |  | = |  | |  | ()2 | = |  |
|  |  |  |
|  |  |  |  | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2. | *x*2 + 16*x* + *c* | | | *c* = | | | | |
|  | **Show work here** | | | | | | | |
|  |  | = |  | |  | ()2 | = |  |
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| 3. | *x*2 – 6*x* + *c* | | | *c* = | | | | |
|  | **Show work here** | | | | | | | |
|  |  | = |  | |  | ()2 | = |  |
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| 4. | *x*2 – 24*x* + *c* | | | *c* = | | | | |
|  | **Show work here** | | | | | | | |
|  |  | = |  | |  | ()2 | = |  |
|  |  |  |
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**Factor each of the following by completing the square.**

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| --- | --- | --- | --- | --- | --- | --- | --- |
| 5. | *x*2 – 12*x* + 27 = 0 | | | Solutions: *x* =  and *x* = | | | |
|  | Equation to complete the square: | | | | | | |
|  | **Show work here to find the *c*-value.** | | | | | | |
|  |  | = |  |  | ()2 | = |  |
|  |  |  |
|  |  |  |  | | | | |
|  | **Show work here to factor:** (Don’t forget the sign of the binomial) | | | | | | |
|  | (*x* )2 | | = |  | | | |
|  |  |  |  | | | | |
|  | **Show work here for solving the two equations:** | | | | | | |
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| 6. | *x*2 – 8*x* – 84 = 0 | | | Solutions: *x* =  and *x* = | | | |
|  | Equation to complete the square: | | | | | | |
|  | **Show work here to find the *c*-value.** | | | | | | |
|  |  | = |  |  | ()2 | = |  |
|  |  |  |
|  |  |  |  | | | | |
|  | **Show work here to factor:** (Don’t forget the sign of the binomial) | | | | | | |
|  | (*x* )2 | | = |  | | | |
|  |  |  |  | | | | |
|  | **Show work here for solving the two equations:** | | | | | | |
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| 7. | *n*2 – 2*n* – 18 = 6 | | | Solutions: *n* =  and *n* = | | | |
|  | Equation to complete the square: | | | | | | |
|  | **Show work here to find the *c*-value.** | | | | | | |
|  |  | = |  |  | ()2 | = |  |
|  |  |  |
|  |  |  |  | | | | |
|  | **Show work here to factor:** (Don’t forget the sign of the binomial) | | | | | | |
|  | (*n* )2 | | = |  | | | |
|  |  |  |  | | | | |
|  | **Show work here for solving the two equations:** | | | | | | |
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| 8. | 10*x*2 – 20*x* – 20 = 10 | | | | Solutions: *x* =  and *x* = | | | | |
|  | Equation to complete the square: | | | | | | | | |
|  | **Show work here to find the *c*-value.** | | | | | | | | |
|  |  | = |  | |  | | ()2 | = |  |
|  |  |  | |
|  |  |  |  | | | | | | |
|  | **Show work here to factor:** (Don’t forget the sign of the binomial) | | | | | | | | |
|  | (*x* )2 | | | = | |  | | | | |
|  |  |  |  | | | | | | |
|  | **Show work here for solving the two equations:** | | | | | | | | |
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| 9. | 2*x*2 – 12*x* – 85 = -5 | | | | Solutions: *x* =  and *x* = | | | |
|  | Equation to complete the square: | | | | | | | |
|  | **Show work here to find the *c*-value.** | | | | | | | |
|  |  | = |  | |  | ()2 | = |  |
|  |  |  |
|  |  |  |  | | | | | |
|  | **Show work here to factor:** (Don’t forget the sign of the binomial) | | | | | | | |
|  | (*x* )2 | | | = | |  | | | |
|  |  |  |  | | | | | |
|  | **Show work here for solving the two equations:** | | | | | | | |
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| 10. | *m*2 – 2*m* – 10 = -7 | | | Solutions: *m* =  and *m* = | | | |
|  | Equation to complete the square: | | | | | | |
|  | **Show work here to find the *c*-value.** | | | | | | |
|  |  | = |  |  | ()2 | = |  |
|  |  |  |
|  |  |  |  | | | | |
|  | **Show work here to factor:** (Don’t forget the sign of the binomial) | | | | | | |
|  | (*m* )2 | | = |  | | | |
|  |  |  |  | | | | |
|  | **Show work here for solving the two equations:** | | | | | | |
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