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 | = |  |
|  |  |  |
|  |  |  |  |

|  |  |  |
| --- | --- | --- |
| 2. | *x*2 + 16*x* + *c* | *c* =  |
|  | **Show work here** |
|  |  | = |  |  | ()2 | = |  |
|  |  |  |
|  |  |  |  |

|  |  |  |
| --- | --- | --- |
| 3. | *x*2 – 6*x* + *c* | *c* =  |
|  | **Show work here** |
|  |  | = |  |  | ()2 | = |  |
|  |  |  |
|  |  |  |  |

|  |  |  |
| --- | --- | --- |
| 4. | *x*2 – 24*x* + *c* | *c* =  |
|  | **Show work here** |
|  |  | = |  |  | ()2 | = |  |
|  |  |  |
|  |  |  |  |

**Factor each of the following by completing the square.**

|  |  |  |
| --- | --- | --- |
| 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:** |
|  |  |  |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| 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:** |
|  |  |  |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| 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:** |
|  |  |  |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| 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:** |
|  |  |  |
|  |  |  |