Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Hr:\_\_\_\_\_ 6.1 C Algebraic and Linear Proofs

Standard: Students will be able to prove algebraic calculations

1. Order the statements correctly. Then choose the reasons for each statement from the choices below.

|  |  |
| --- | --- |
| Given: $2x+3=5x-6$Prove: $x=3$Statements: | Reasons (Justification): |
| 1)2)3)4)5) | a)b)c)d)e) |
| Statements:* $3=x$
* $2x+3=5x-6$
* $9=3x$
* $x=3$
* $3=3x-6$
 | Reasons:* Subtraction Property of Equality
* Given
* Addition Property of Equality
* Subtraction Property of Equality
* Division Property of Equality
* Substitution Property
* Symmetric Property
* Reflexive Property
 |

|  |  |
| --- | --- |
| 1. Write a complete proof.

Given: $3x-5=10$Prove: $x=5$Statements: | Reasons (Justification): |
|  |  |

(Hint: Work out the problem first, use the steps as statements)

Standard: Students will be able to prove statements about angles.

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| 1. Fill in the blanks on the following proof.

Given: $∠1≅∠2$Prove: $∠4≅∠3$ Statements: |  Reasons: |
| 1. $∠1≅∠2$
2. $∠4≅∠2$
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. $∠1≅∠3$
5. $∠4≅∠3$
 | 1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Vertical angles are $≅$
3. Transitive Property of Congruence
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
 |

1. Write a complete proof using the information given.

Given: $∠2≅140°$

4

2

Prove: $∠8≅40°$

8

6

 Statements: Reasons:

|  |  |
| --- | --- |
|  |  |

Standard: Students will be able to prove statements about lines (segments)

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| --- | --- | --- | --- | --- |
| 1. Complete the proof by filling in the spaces below.

Given: JK = 48Lx + 3 4xJKProve: x = 9

|  |  |
| --- | --- |
| Statements | Reasons |
| 1)2) JL + LK = JK3) 4) 5x + 3 = 485)6) x = 9  | a) Givenb)c) Substitution Propertyd) Distributive Propertye)f) |

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| 1. Use the statements and reasons given at the bottom to write a complete proof of the following:

3x + 8 5xGiven: $C is the midpoint of \overline{AD}.$ Prove: $x=4$Statements: Reasons: |
| Statements:* $2x=12$
* $m\overline{AC}=m\overline{CD}$
* $5x=3x+8$
* $\overline{AC}≅\overline{CD}$
* $x=4$
* $C is the midpoint of \overline{AD}$
 | Reasons:* Congruent segments have equal legth
* Subtraction Property of Equality
* Given
* Definition of midpoint
* Division Property of Equality
* Substitution Property
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