Justifying the Steps for Algebra Problems

Now, you will practice writing justifications for proofs using algebra problems. You will need to use one of the properties for equality for real numbers to justify each step taken to solve the given problem.

Justify each step in solving $2x - 5 = 18$.

Given: $2x - 5 = 18$
Prove: $x = 11.5$

Statements	Reasons
1. $2x - 5 = 18$	1.
2. $2x = 23$	2.
3. $x = 11.5$	3.

Justify each step in solving $2(3x - 1) = 22$.

Given: $2(3x - 1) = 22$
Prove: $x = 4$

Statements	Reasons
1. $2(3x - 1) = 22$	1.
2. $6x - 2 = 22$	2.
3. $6x = 24$	3.
4. $x = 4$	4.

Solve and Justify the Steps for Each Algebra Problem

Now, you will practice creating proofs by solving algebra problems. You will need to solve each problem, then use one of the properties for equality for real numbers to justify each step taken to solve the given problem.

Solve and justify each step in solving $3(x + 5) + 7 = 25$.

Given: $3(x + 5) + 7 = 25$
Prove: $x = 1$

Statements	Reasons
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.

Solve and justify each step in solving $\frac{2x+11}{3} = 27$.

Given: $\frac{2x+11}{3} = 27$
Prove: $x = 35$

Statements	Reasons
1.	1.
2.	2.
3.	3.
4.	4.

Cut it Out: Simple Proof with Segment Addition

Review the information that you have learned about line segments and use that information to justify each step for the proof. (Review the segment addition postulate and the properties of equality before beginning this proof.)

Justify the steps for the proof of the conditional if $AC = BD$, then $AB = CD$.

Given: $AC = BD$
Prove: $AB = CD$

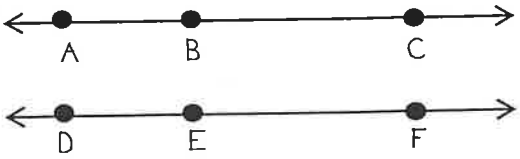
Statements	Reasons
1. $AC = BD$	1.
2. $AB + BC = AC$ $BC + CD = BD$	2.
3. $AB + BC = BC + CD$	3.
4. $AB = CD$	4.

Cut it Out: Writing a Two-Column Proof (Segment Addition)

Review the information that you have learned about line segments and use that information to create a two-column proof. (Review the segment addition postulate and the properties of equality before beginning this proof.)

Prove that if $AC = DF$ and $AB = DE$, then $BC = EF$.

Given: $AC = DF$ and $AB = DE$
Prove: $BC = EF$



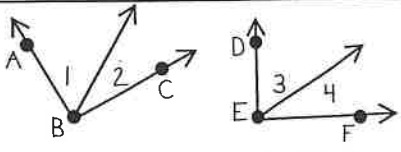
Statements	Reasons
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.

Cut it Out: Writing a Two-Column Proof (Angle Addition)

Review the information that you have learned about line segments and use that information to create a two-column proof. (Review the angle addition postulate and the properties of equality before beginning this proof.)

Prove that if $m\angle ABC = m\angle DEF$ and $m\angle 1 = m\angle 3$, then $m\angle 2 = m\angle 4$.

Given: $m\angle ABC = m\angle DEF$ and $m\angle 1 = m\angle 3$
Prove: $m\angle 2 = m\angle 4$



Statements	Reasons
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.