Handout 3: Prove and Improve - Answers

For problems 1-5, A = B, C = D, E = F, G = H, and $H \neq 0$.

- For questions 6- 10, it is given that $3(x-2)^2 = 12$ and $\frac{1}{2}x^2y^2 = 72$.
- 1. What allows us to say that AC = BC? Multiplication Property
- 6. What must we do to $3(x-2)^2 = 12$ to get $(x-2)^2 = 4$? Divide both sides by 3
- 2. What allows us to say that AD = BC? Substitution Property
- 7. What will we get when we solve $(x-2)^2 = 4$ for x? x = 4.
- 3. What allows us to say that AD + E = BC + F?

 Addition Property and Substitution Property
- 8. What must we do to $\frac{1}{2}x^2y^2 = 72$ in order to get $x^2y^2 = 144$? Multiply both sides by 2
- 4. What allows us to say that $\frac{AD+E}{G}=\frac{BC+F}{G}$ Division Property
- 9. If we substitute our answer for x into the equation, what will we get? $16y^2 = 144$
- 5. What allows us to say that $\frac{AD+E}{G}=\frac{BC+F}{H}$? Substitution Property
- 10. Simplifying the remaining equation, what will be our value of y? y = 3

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