LESSON 8.2

NAME _____ DATE _____

Challenge: Skills and Applications

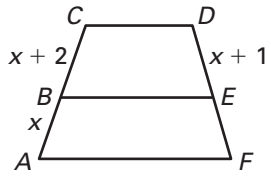
For use with pages 465–471

In Exercises 1–6, use the given information to find all possible values of *x*. (Assume the given quantities must be positive.)

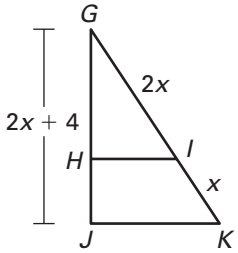
1. The geometric mean of $x - 3$ and $x + 4$ is x.
2. The geometric mean of x and x^2 is 8.
3. The geometric mean of $x + 1$ and $12x$ is $6x$.
4. The geometric mean of $\sqrt{x}$ and $9\sqrt{x}$ is $x - 4$.
5. The geometric mean of $x - 3$ and $2x + 8$ is $x + 4$.
6. The geometric mean of $x + 1$ and $3x + 1$ is $3x - 1$.

In Exercises 7–9, give each answer in terms of *x*.

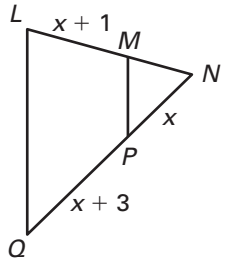
7. **Given:** $\frac{AB}{BC} = \frac{FE}{ED}$, find FE.



8. **Given:** $\frac{GH}{GJ} = \frac{GI}{GK}$, find HJ.

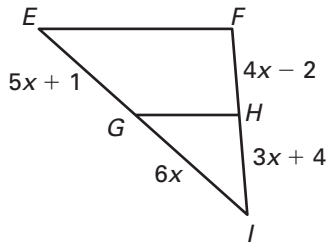


9. **Given:** $\frac{MN}{LN} = \frac{PN}{QN}$, find LN.

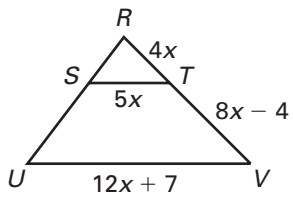


In Exercises 10–12, use the given information to find all possible values of *x*.

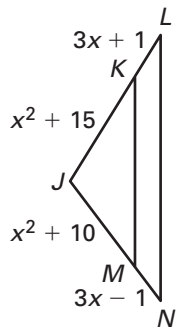
10. **Given:** $\frac{EG}{GI} = \frac{FH}{HI}$



11. **Given:** $\frac{ST}{RT} = \frac{UV}{RV}$



12. **Given:** $\frac{JK}{KL} = \frac{JM}{MN}$



13. An airplane has a wingspan of $(x^2 + 1)$ ft and a length of $(x^2 - 9)$ ft. A scale model of this plane has a wingspan of $(x + 3)$ ft and a length of $(x + 1)$ ft. Based on this information, use a proportion to find the wingspan of the actual airplane.