1. An elephant is 12 feet tall, and its shadow is 6 feet long at exactly 10.00 am. Ken’s shadow is 3 feet at the same time. Find Ken’s height using the concept of similar triangles.

2. I wish to reduce without changing the shape of my triangular table mat which has sides of length 8, 8 and 10 inches so that it fits on my new table. If the longest side should be 5 inches, how long should the other sides be?

3. When a building casts a shadow 60 feet long, a man 5 feet tall casts a shadow of length 6 feet. How tall is the building?

4. A carpenter wants to reduce by scaling down a triangular ply board measuring sides measuring 8, 10 and 12 inches so that it fits on a triangular frame whose shortest side is 4 inches. How long should the other two sides be?

5. An electrician leans a 10 foot-ladder against a wall in such a way that the ladder touches the wall at the height of 5 feet above the ground. If he decides to use a 15 foot-ladder and leans it against the wall such that both ladders form the same angle with the ground, at what height above the ground will this ladder touch?
For the following pairs of similar triangles in questions 6-10, find the missing side represented by the letter. The triangles are not drawn to scale, and all measurements are inches.

6.

\[
\begin{align*}
12 & \quad 20 \\
\color{red}x & \\
\end{align*}
\]

7.

\[
\begin{align*}
10 & \quad 16 \\
4 & \quad \color{red}x \\
3.2 & \\
\end{align*}
\]

8.

\[
\begin{align*}
\color{red}x & \quad 12 \\
5 & \\
12 & \\
\end{align*}
\]
9. Study and use the figure below to answer questions 11-15. \( \triangle ABC \sim \triangle DEF \)

10. Study and use the figure below to answer questions 11-15. \( \triangle ABC \sim \triangle DEF \)
Identify an angle congruent to:
11. $\angle A$

12. $\angle F$

13. $\angle E$

Find the length represented by:
14. $x$

15. $y$

16. In the figure below $\triangle KLM \sim \triangle NPM$. Calculate the length of altitude $MQ$. All units are in inches.
Use the figure below answer questions 17-20.

Find the length represented by:

17. $a$

18. $b$

19. Find the measure of the angle represented by $\theta$

20. Write the statement of proportionality using the ratio of corresponding sides
Answer keys

Day 73:
1. 6 ft
2. 4 in.
3. 50 ft
4. 5 in. and 6 in
5. 7.5 ft
6. $x = 16$
7. $x = 6.4$
8. $x = 10$
9. $x = 17.5$
10. $x = 18.75$
11. $\angle D$
12. $\angle C$
13. $\angle B$
14. $x = 12$
15. $y = 8$
16. $MQ = 30$ in.
17. $a = 16$
18. $b = 18$
19. $\theta = 54^\circ$
20. $\frac{AD}{AB} = \frac{DE}{BC} = \frac{AE}{AC} = \frac{5}{3}$