15. $X'(14, -7)$, $Y'(11, -2.5)$, $Z'(2, 0.5)$

Preimage	Dilated (1.5)	Translated $\langle 5, -4 \rangle$
$X(6, -2)$	$(9, -3)$	$(14, -7)$
$Y(4, 1)$	$(6, 1.5)$	$(11, -2.5)$
$Z(-2, 3)$	$(-3, 4.5)$	$(2, 0.5)$

16. $L'(1, -2)$, $M'(2, -2)$, $N'(2, 2)$, $P'(1, 2)$

Preimage	Dilated (0.5)	Reflected (*x*-axis)
$L(2, 4)$	$(1, 2)$	$(1, -2)$
$M(4, 4)$	$(2, 2)$	$(2, -2)$
$N(4, -4)$	$(2, -2)$	$(2, 2)$
$P(2, -4)$	$(1, -2)$	$(1, 2)$

17. $P'(-6, -2)$, $Q'(-4, 8)$, $R'(-10, 0)$;

Preimage	Rotated (270°)	Dilated (2)	Reflected (*y*-axis)
$P(1, 3)$	$(3, -1)$	$(6, -2)$	$(-6, -2)$
$Q(4, -2)$	$(2, 4)$	$(4, 8)$	$(-4, 8)$
$R(0, 5)$	$(5, 0)$	$(10, 0)$	$(-10, 0)$

18. $A'(0.5, -1.5)$, $B'(0, 0)$, $C'(-1.25, -2)$, $D'(-0.5, -2.5)$

Preimage	Reflected (x-axis)	Dilated (0.25)
$A(2, 6)$	$(2, -6)$	$(0.5, -1.5)$
$B(0, 0)$	$(0, 0)$	$(0, 0)$
$C(-5, 8)$	$(-5, -8)$	$(-1.25, -2)$
$D(-2, 10)$	$(-2, -10)$	$(-0.5, -2.5)$

19. Answers may vary. Sample: translation down 2 units and right 4 units, and then dilation with the point P' as center and scale factor 2; $PQRS \sim DABC$

20. Answers may vary. Sample: reflection across $x = -3$, dilation with center at A' and scale factor 2; $\triangle ABC \sim \triangle ZYX$

21. Answers may vary. Sample: rotation 180° and dilation to decrease the image size; $HJKL \sim ABCD$

22. Yes; it appears you can scale the figure on the left by $\frac{1}{2}$ and map the image onto to the figure on the right.

23. No; the bases of the trapezoids are congruent but the top trapezoid appears to be shorter in height than the bottom trapezoid.

24. He can use the 3 ft by 4 ft paper if he rotates it so that the width is 4 ft and the height is 3 ft because the side lengths are proportional to his cutout. The 180 cm by 120 cm paper does not have side lengths that are proportional to his cutout. He can use it if he cuts it down to 160 cm by 120 cm.

$\frac{9}{12} = \frac{3}{4} \neq \frac{120}{180}$, $\frac{3}{4} = \frac{120}{(180-20)} = \frac{120}{160}$

25. 27.5 m^2; 5.5 m is represented by 11 sections on the grid, so each grid line represents $\frac{5.5}{11} = 0.5$ m. The scrim is 10 grid sections tall, or $10 \times 0.5 = 5$ m. $5 \times 5.5 = 27.5$