15. $\frac{(X+12)}{12} = \frac{20}{15}$

$15(X+12) = 240$

$15X + 180 = 240$

$15X = 60$

$X = 4$

16. Area of circle:

$A = \pi r^2 \approx 3.14(6)^2 = 113.04 \text{ ft}^2$

Sector is $\frac{330^\circ}{360^\circ} = \frac{11}{12}$ of circle

$\frac{11}{12}(113.04 \text{ ft}^2) = 103.62 \text{ ft}^2$

17. Volume of cylinder:

$V = Bh = \pi r^2 h \approx$

$3.14(6)^2(4.5) = 508.68 \text{ ft}^3$

Sector is $\frac{330^\circ}{360^\circ} = \frac{11}{12}$ of cylinder

$\frac{11}{12}(508.68 \text{ ft}^3) = 466.29 \text{ ft}^3$

18. $2X^\circ + 3X^\circ = 180^\circ$

(supplementary angles)

$5X^\circ = 180^\circ$

$X = 36^\circ$

19. $4X^\circ + X^\circ = 90^\circ$

(complementary angles)

$5X^\circ = 90^\circ$

$X = 18^\circ$

20. $P = S + S + S = 2X + 6X + 4X$

$2X + 6X + 4X = 12$

$12X = 12$

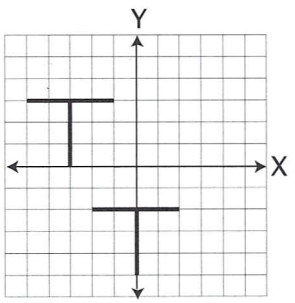
$X = 1$

Lesson Practice 28A

Here are some ideas to help with transformational geometry. For reflection problems, try placing the edge of a hand mirror on the axis of reflection, facing the figure to be reflected. The reflection in the mirror will show the image that would be the result of geometric reflection.

For rotation problems, lay a piece of tracing paper over the graph, trace the original figure, and plot the point of rotation. Without moving the tracing paper, insert a pin through the point of rotation and into the graph on the student page. Now, rotate the tracing paper counterclockwise the indicated number of degrees, and the new position of the image on the tracing paper will indicate the result of geometric rotation.

1.



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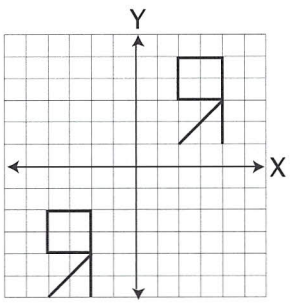

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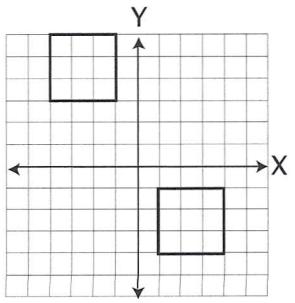

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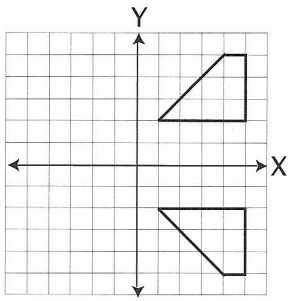

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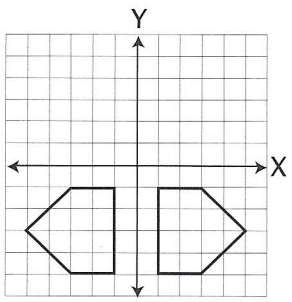

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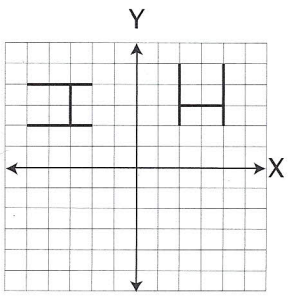

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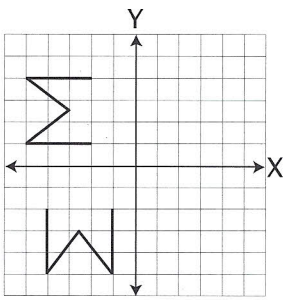

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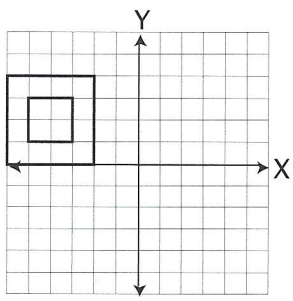

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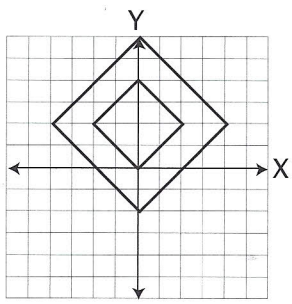
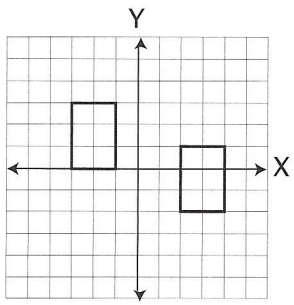


Lesson Practice 28B

1.



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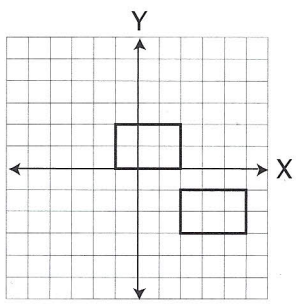
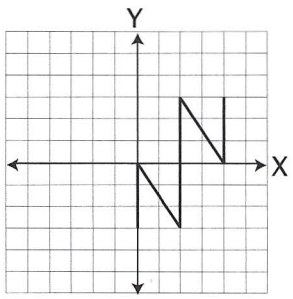


3.



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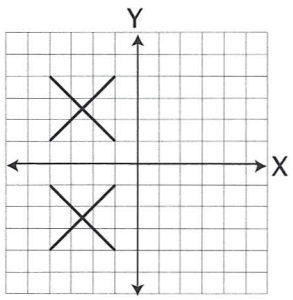

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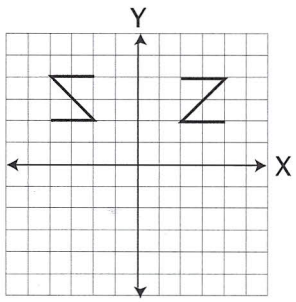

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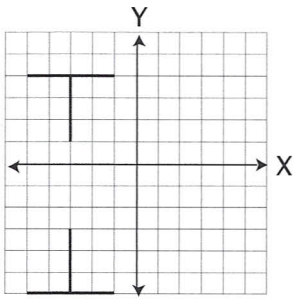

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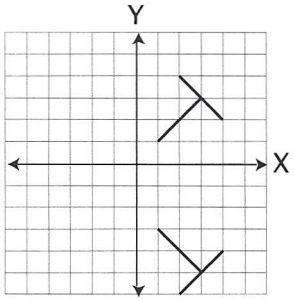

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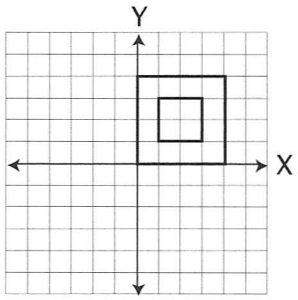

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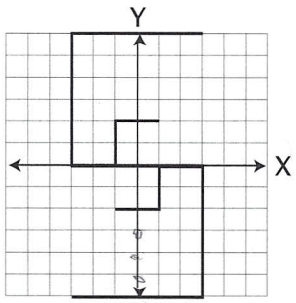
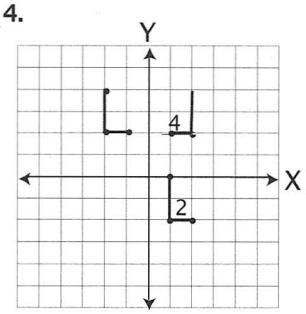
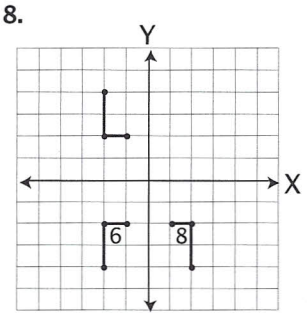


Systematic Review 28C

1-4.



5-8.



9. D: $\frac{A}{B} = \frac{A+C}{D}$

10. $A+C = 5+10 = 15$ ft

11. $\frac{5}{3} = \frac{15}{D}$

$5D = 45$

$D = 9$ ft

12. $\frac{6}{10} = \frac{X}{30}$

$180 = 10X$

$18 \text{ ft} = X$

13. reflex angle

14. $6\sqrt{200} = 6\sqrt{(100)(2)} = 6\sqrt{100}\sqrt{2} = 6(10)\sqrt{2} = 60\sqrt{2}$

15. $m\angle Y = m\angle P$

16. given

17. $m\angle X = m\angle N$

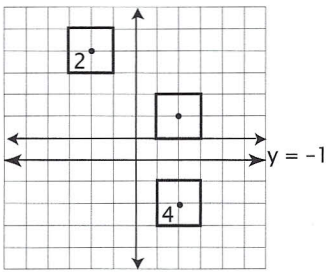
18. angles with the same measure are congruent

19. $\triangle WXY \sim \triangle MNP$

20. AA

Systematic Review 28D

1-4.



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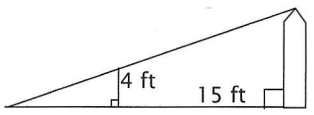


6. $\frac{B}{(15+6)} = \frac{4}{6}$

$6B = 4(15+6)$

$6B = 4(21)$

$6B = 84$

$B = 14$ ft

7. $\frac{B}{(15+10)} = \frac{4}{10}$

$10B = 4(15+10)$

$10B = 4(25)$

$10B = 100$

$B = 10$ ft

8. $10^2 + 25^2 = H^2$

$100 + 625 = H^2$

$725 = H^2$

$\sqrt{725} = H$

$H = \sqrt{25}\sqrt{29} = 5\sqrt{29}$

$H \approx 26.93$ ft

9. $m\angle\alpha = 180° - (39° + 44°) = 180° - 83° = 97°$

10. $m\angle\beta = 180° - 97° = 83°$ (supplementary angles)

11. right triangle, isosceles

12. major arc and minor arc add up to 360°:

$360° - 79° = 281°$

13. exterior angles are

$180° - 120° = 60°$

exterior angles add up to 360°:

$\frac{360°}{60°} = 6$ sides: hexagon

14. Area of one triangle =

$\frac{1}{2}bh = \frac{1}{2}(7.5)(5) = 18.75 \text{ in}^2$

Six triangles:

$6(18.75 \text{ in}^2) = 112.5 \text{ in}^2$

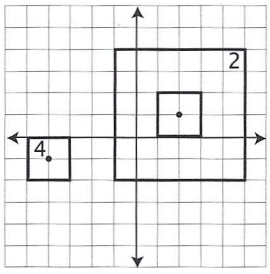
15. $P = 6(7.5 \text{ in}) = 45$ in

16. $\square RHSB$ is a rhombus

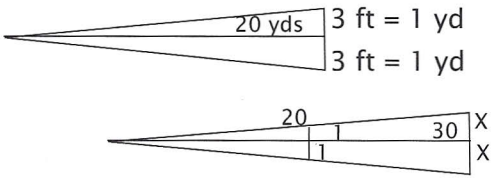
17. $\overline{BS} \cong \overline{RH}$: definition of a rhombus
18. $\overline{BR} \cong \overline{HS}$: definition of a rhombus
19. $\overline{BH} \cong \overline{BH}$: reflexive property
20. $\triangle HSB \cong \triangle BRH$: SSS

Systematic Review 28E

1-4.



5.



6. $\frac{X}{1} = \frac{50}{20}$

$20X = 50$

$X = \frac{50}{20} = 2\frac{1}{2}$ or 2.5 yd

(or 7.5 ft)

7. $50^2 + 2.5^2 = H^2$

$2{,}500 + 6.25 = H^2$

$2{,}506.25 = H^2$

$H = \sqrt{2{,}506.25} \approx 50.06$ yd (or 150.9 ft)

8. Exterior angle $= 180° - 108° = 72°$

$\frac{360°}{72°} = 5$: pentagon

9. Area of one triangle:

$A = \frac{1}{2}bh = \frac{1}{2}(11)(8) = 44 \text{ m}^2$

Area of five triangles:

$44 \text{ m}^2(5) = 220 \text{ m}^2$

10. $P = 5(11 \text{ m}) = 55 \text{ m}$

11. $\overline{KZ}$ bisects $\angle JKX$ and $\angle JZX$ (Numbers 12-14 may be in any order.)
12. $\angle JKZ \cong \angle XKZ$: definition of bisector
13. $\angle JZK \cong \angle XZK$: definition of bisector
14. $\overline{KZ} \cong \overline{KZ}$: reflexive property
15. $\triangle JZK \cong \triangle XKZ$: ASA
16. $P = 2(X+3) + 2(X+1)$

$2(X+3) + 2(X+1) = 36$

$2X + 6 + 2X + 2 = 36$

$4X + 8 = 36$

$4X = 28$

$X = 7$ ft

17. $A = bh = (X+3)(X)$

$(X+3)(X) \Rightarrow (7+3)(7) = (10)(7) = 70 \text{ ft}^2$

18. $P = 2(Y+4) + 2(Y-1)$

$2(Y+4) + 2(Y-1) = 98$

$2Y + 8 + 2Y - 2 = 98$

$4Y + 6 = 98$

$4Y = 92$

$Y = 23$ in

19. $A = bh = (Y+4)(Y-1)$

$(Y+4)(Y-1) \Rightarrow$

$((23)+4)((23)-1) =$

$(27)(22) = 594 \text{ in}^2$

20. $5X° + 4X° = 90°$: complementary angles

$9X° = 90°$

$X = 10°$

Lesson Practice 29A

1. $\frac{5}{13}$
2. $\frac{12}{13}$
3. $\frac{5}{12}$
4. $\frac{12}{13}$