Name \_\_\_\_\_ Mr. Schlansky Date \_\_\_\_\_ Geometry

## Similar Triangles Review Sheet

1. Triangle *SUN* has coordinates *S*(0,6), *U*(3,5), and *N*(3,0). On the accompanying grid, draw and label  $\triangle SUN$ . Then, graph and state the coordinates of  $\triangle S'U'N'$ , the image of  $\triangle SUN$  after a dilation of 2 centered at (-1,4).



2. Triangle *ABC* has coordinates A(2, 1), B(6,1), C(5,3). What is the image of this triangle after a dilation of 4 centered at (6,4). Graph both the image and the pre image.



3. In the diagram below,  $\overline{AD}$  intersects  $\overline{BE}$  at C, and  $\overline{AB} \| \overline{DE}$ .

If CD = 6.6 cm, DE = 3.4 cm, CE = 4.2 cm, and BC = 5.25 cm, what is the length of  $\overline{AC}$ , to the *nearest hundredth of a centimeter*?



4. In the diagram below,  $AB \parallel DE$ . If AC = 2, CD = 6, and CE = 3, what is BC?



5. In triangle *TOR*, *Y* is on  $\overline{TR}$ , and *D* is on  $\overline{TO}$  so that  $\angle TYD \cong \angle ROT$ . If  $\overline{TY} = 2$ ,  $\overline{YR} = 6$ , and  $\overline{TD} = 4$ , find  $\overline{TO}$ .



6. In  $\triangle ABC$  shown below,  $\angle ACB$  is a right angle, *E* is a point on  $\overline{AC}$ , and  $\overline{ED}$  is drawn perpendicular to hypotenuse  $\overline{AB}$ . If AB = 9, BC = 6, and DE = 4, what is the length of  $\overline{AE}$ ?



7. D and E are midpoints of  $\overline{AB}$  and  $\overline{BC}$  respectively. If  $\overline{DE} = 2x + 11$  and  $\overline{AC} = 7x - 1$ , find the measure of  $\overline{AC}$ .



8. In the diagram of *ABC* shown below, *E* and *F* are the midpoints of  $\overline{AC}$  and  $\overline{BC}$ , respectively.



9. If  $\overline{AD} = 3$  and  $\overline{AB} = 27$ , find  $\overline{CD}$  to the *nearest tenth*.



10. In right triangle *RST* below, altitude  $\overline{SV}$  is drawn to hypotenuse  $\overline{RT}$ . If RV = 4.1 and TV = 10.2, what is the length of  $\overline{ST}$ , to the *nearest tenth*?



11. In the diagram of  $\triangle ABC$  shown below,  $\overline{DE} \parallel \overline{BC}$ .

If AB = 10, AD = 8, and AE = 12, what is the length of  $\overline{EC}$ ? 1) 6 2) 2 3) 3

4) 15



12. In the diagram below of  $\triangle PQR$ ,  $\overline{ST}$  is drawn parallel to  $\overline{PR}$ , PS = 2, SQ = 5, and TR = 5What is the length of  $\overline{QR}$ ?



13. To find the distance across a pond from point B to point C, a surveyor drew the diagram below. The measurements he made are indicated on his diagram. Use the surveyor's information to determine and state the distance from point B to point C, to the *nearest yard*.



14. In the diagram of  $\triangle ABC$  below,  $\overline{DE}$  is parallel to  $\overline{AB}$ , CD = 15, AD = 9, and AB = 40. Find the length of  $\overline{DE}$ .



15. In the diagram below of right triangle *ABC*, altitude  $\overline{BD}$  is drawn to hypotenuse  $\overline{AC}$ . If BD = 4, AD = x - 6, and CD = x, what is the length of  $\overline{CD}$ ?



16. In triangle ABC,  $\overline{DE} \parallel \overline{BC}$ . If  $\overline{AD} = 2$ ,  $\overline{DB} = x + 1$ ,  $\overline{AE} = x$ , and  $\overline{EC} = x + 6$ , find  $\overline{AE}$ 



17. As shown in the diagram below,  $\overline{AB}$  and  $\overline{CD}$  intersect at *E*, and  $\overline{AC} \parallel \overline{BD}$ .

Given  $\triangle AEC \sim \triangle BED$ , which equation is true?

1)	<u>CE</u> <u>EB</u>
	DE EA
2)	EC = BE
	$\overline{AE} = \overline{ED}$
3)	AE AC
	$\overline{BE} = \overline{BD}$
4)	ED AC
	$\overline{EC} = \overline{BD}$

18. In the diagram below,  $\Delta QRX \sim \Delta TUV$ . Which of the following statements is *not* true?





С

Е

B

19. In right triangle *JKL* below, altitude  $\overline{KM}$  is drawn to hypotenuse  $\overline{JL}$ . Which of the following proportions is *not* true?



20. In right triangle *SNO* below, altitude  $\overline{NW}$  is drawn to hypotenuse  $\overline{SO}$ . Which statement is *not* always true? 1)  $\frac{SO}{SN} = \frac{SN}{SW}$ 2)  $\frac{SW}{NS} = \frac{NS}{OW}$ 3)  $\frac{SO}{ON} = \frac{ON}{OW}$ 4)  $\frac{OW}{NW} = \frac{NW}{SW}$ N

21. Determine whether the following triangles are similar. Explain your answer.



22. In the diagram below,  $\overline{AR} = 15$ ,  $\overline{RF} = 12$ ,  $\overline{DO} = 10$ ,  $\overline{OG} = 8$ , and  $\angle ARF \cong \angle DOG$ . Must  $\triangle ARF \sim \triangle DOG$ ? Explain your answer.



23. After a dilation with center (0, 0), the image of  $\overline{DB}$  is  $\overline{D'B'}$ . If DB = 4.5 and D'B' = 18, what is the scale factor of this dilation?

24.  $\overline{DR}$  is dilated centered at point D such that  $\overline{DR} = 8$  and  $\overline{D'R'} = 12$ . What is the scale factor of the dilation?

25. Triangle JOY has a perimeter of 10 and an area of 12. What is the perimeter and area of triangle JOY after a dilation by a scale factor of 2?

26. Quadrilateral CAMI has a perimeter of 20 and an area of 15. What is the perimeter and area of quadrilateral CAMI after a dilation by a scale factor of 4?

27. Given:  $\angle C \cong \angle OTU$ . Prove:  $\overline{SC} \bullet \overline{OU} = \overline{OT} \bullet \overline{SU}$ 



28. Given:  $\overline{GI}$  is parallel to  $\overline{NT}$ .

Prove:  $\overline{IA} \bullet \overline{TN} = \overline{IG} \bullet \overline{AN}$ 

