Accelerated Coordinate Algebra
Spring 2017—Benchmark 2—Study Guide

Name_____

Be sure to review old test, quizzes, notes and assignments!!

1. Craig Kimbrell, a pitcher with the Boston Red Sox, can throw a four seam fastball 98 miles per hour. What is the speed of the ball in feet per second?

$\frac{98 \text{ miles}}{1 \text{ hour}} = \frac{517440 \text{ ft}}{3600 \text{ sec}} = 143.73 \text{ ft/sec}$

2. An average typing speed for a person in a high school computer/typing class is about 44 words per minute. At this rate how many hours would it take to re-type a novel that is 45,000 words?

$\frac{44 \text{ words}}{1 \text{ min}} = \frac{2640 \text{ words}}{60 \text{ min (hr)}}$ $45{,}000 \div 2640 = 17.05$

3. A sales person that worked at a cell phone store recorded the following information about the number of Android phones and iPhones that he sold for the day: He sold a total of 24 smartphones that were either an iPhone or an Android phone. The iPhones that he sold were all priced at $200 and the all of the Android phones were priced at $150. He sold a total of value of $4150 in smartphones. Use a system of equations to find the number of each type of phone that was sold.

x - iPhone
y - Android

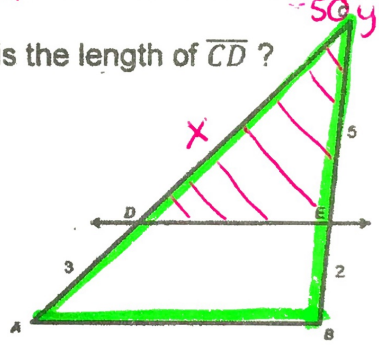
$-200(x + y = 24)$ $200x + 150y = 4150$

$-200x - 200y = -4800$
$200x + 150y = 4150$
$-50y = -650$
$y = 13$

$x = 11$ (iPhone)
$y = 13$ (Android)

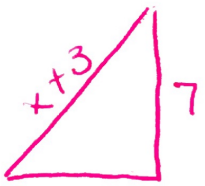
4. In the triangle shown, $\overline{AB} \parallel \overline{DE}$. What is the length of $\overline{CD}$?

A. 1.2
B. 3.3
C. 6.0
D. 7.5



$\frac{5}{7} = \frac{x}{x+3}$

$5x + 15 = 7x$
$15 = 2x$
$7.5 = x$



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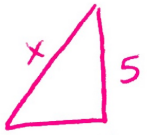

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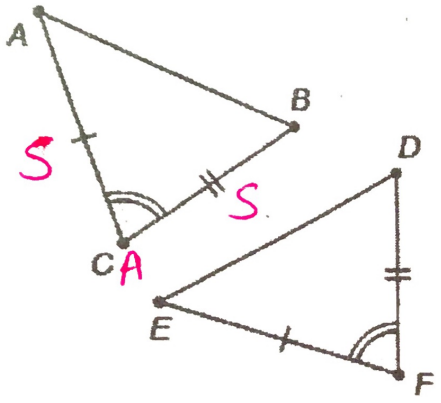
Use the diagram at right for questions 5—6.



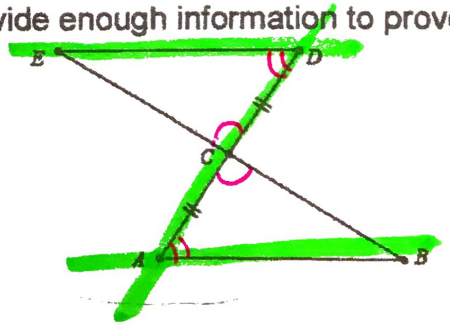
5. Which can be used to prove the triangles are congruent?

A. SAS
B. SSA
C. ASA
D. SSS

6. Which would be a correct congruence statement?

A. $\Delta ABC \cong \Delta DEF$
B. $\Delta BCA \cong \Delta EDF$
C. $\Delta BAC \cong \Delta DFE$
D. $\Delta CAB \cong \Delta FED$

7. In the diagram, $\overline{AC} \cong \overline{DC}$. Which information would provide enough information to prove that $\Delta ABC \cong \Delta DEC$?



A. $\overline{ED} \cong \overline{BA}$ SSA ✗ NO!
B. $\overline{AD} \cong \overline{EB}$ Doesn't mean $\overline{EC} \cong \overline{CB}$
C. $\overline{ED} \parallel \overline{BA}$ ✓ Creates alt. int ∠s ASA
D. $\overline{AD} \perp \overline{EB}$

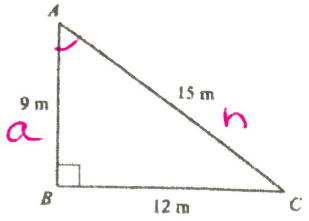
8. Triangle ABC is shown. What is the value of $\cos A$?

A. $\frac{3}{5}$

B. $\frac{3}{4}$

C. $\frac{4}{5}$

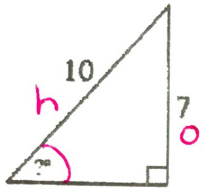
D. $\frac{5}{3}$



$C = \frac{a}{h}$

$C = \frac{9}{15}$ or $\frac{3}{5}$

9. Find the measure of the angle.

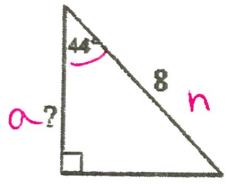


$S = \frac{o}{h}$

$\sin^{-1}\left(\frac{7}{10}\right)$

$\approx \boxed{44°}$

10. Find the unknown side length.



$\cos(44°) = \frac{a}{8}$

$\cos(44°) \times 8 = a$

$\boxed{5.75 = a}$

11. Determine if the lengths can be sides of a triangle. If so, is the triangle acute, obtuse or right?

8 inches, 9 inches, 11 inches

$\boxed{\text{acute}}$

$a^2 + b^2 \square c^2$

$64 + 81 \quad 121$

$145 > 121$

12. Point $P'(-6,-4)$ is the image of point $P(-2,3)$ under translation T. What is the image of $(5,-1)$ under the same translation?

new orig.

$(-2, 3)$

$[-4, -7]$

$(-6, -4)$

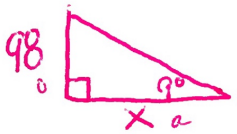
$(5, -1)$

$-4, -7$

$\boxed{(1, -8)}$

13. A ship has been sighted from a lighthouse. The observer is 98 feet above the ground (sea level) when he sighted the ship and at 9° angle of depression. Determine how far the ship is away from the lighthouse.

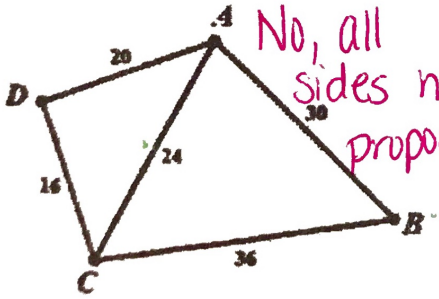
$\boxed{X = 618.75}$



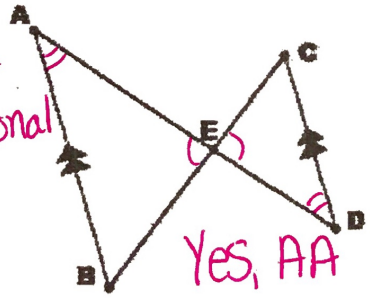
$\tan(9°) = \frac{98}{x}$

$98 \div \tan(9) = x$

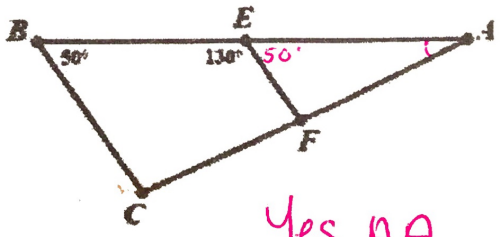
14. Determine if the triangles are similar. If so, justify your answer.



No, all sides not proportional



Yes, AA



Yes, AA