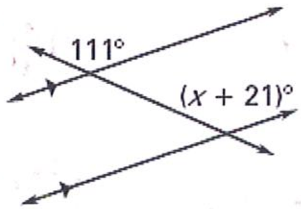
Academic Geometry
3.2-3.3 Practice/Review

Name: KEY
Date: ______ Period: ______

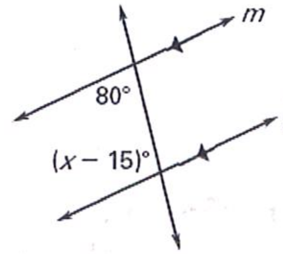
Find the value(s) of the variable(s).

1. $x =$ 90



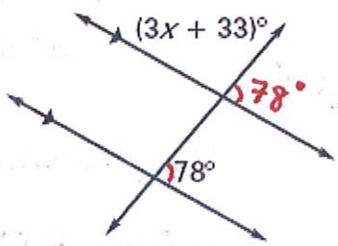
$x + 21 = 111$
$-21 \quad -21$
$x = 90$

2. $x =$ 115



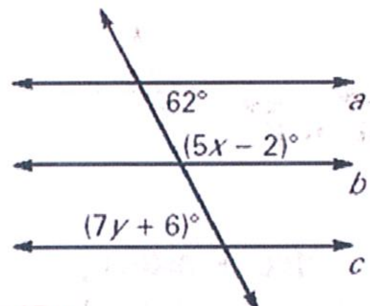
$x - 15 + 80 = 180$
$x + 65 = 180$
$-65 \quad -65$
$x = 115$

3. $x =$ 23



$3x + 33 + 78 = 180$
$3x + 111 = 180$
$-111 \quad -111$
$\frac{3x}{3} = \frac{69}{3}$
$x = 23$

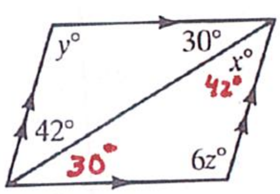
4. If $a \parallel b \parallel c$, then $x =$ 24 $y =$ 8



$5x - 2 + 62 = 180$
$5x + 60 = 180$
$-60 \quad -60$
$\frac{5x}{5} = \frac{120}{5}$ $x = 24$

$7y + 6 = 62$
$-6 \quad -6$
$\frac{7y}{7} = \frac{56}{7}$
$y = 8$

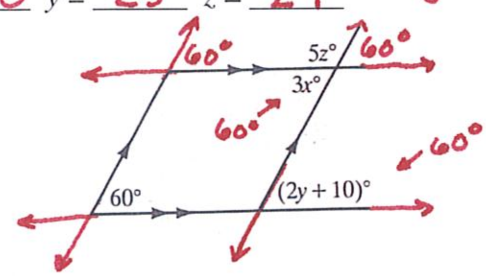
5. $x =$ 42 $y =$ 108 $z =$ 18



$72 + y = 180$
$-72 \quad -72$
$y = 108$

$72 + 6z = 180$
$-72 \quad -72$
$\frac{6z}{6} = \frac{108}{6}$
$z = 18$

6. $x =$ 20 $y =$ 25 $z =$ 24



$\frac{3x}{3} = \frac{60}{3}$
$x = 20$

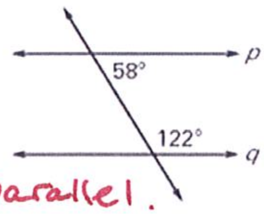
$2y + 10 = 60$
$-10 \quad -10$
$\frac{2y}{2} = \frac{50}{2}$
$y = 25$

$5z + 60 = 180$
$-60 \quad -60$
$\frac{5z}{5} = \frac{120}{5}$
$z = 24$

Is it possible to prove the lines parallel? If so, name the lines that must be parallel and justify your answer with a theorem or postulate. If not, write *not possible.*

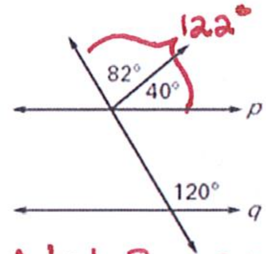
7.

p ∥ q



Yes, parallel.
Consec. Int. ∡'s Converse.

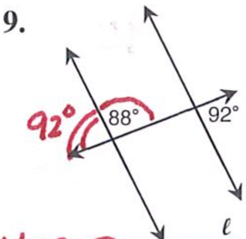
8.



Not Proven

9.

K ∥ ℓ

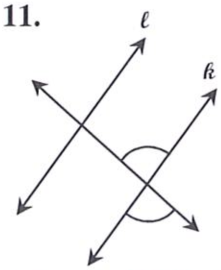


Yes, Parallel
Alt. Ext. ∡'s Converse

10.

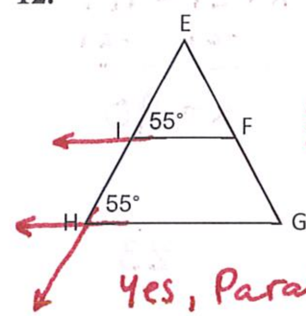
NOT PROVEN

11.



NOT PROVEN

12.

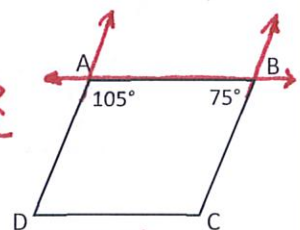


$\overleftrightarrow{IF} \parallel \overleftrightarrow{HG}$

Yes, Parallel
Corres. ∡'s Post. Converse

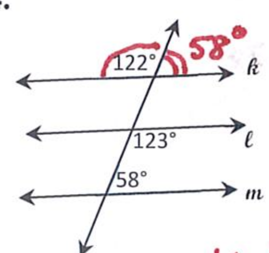
13.

$\overleftrightarrow{AD} \parallel \overleftrightarrow{BC}$



Yes Parallel,
Consec. Int. ∡'s Converse

14.



Yes, Parallel.
Corres. ∡ Post. Converse
K // m (Not ℓ)

15. Multiple Choice: Which of the following postulates/theorems requires lines to be parallel in order to make a conclusion?

A. Alternate Exterior Angles Theorem
B. Alternate Exterior Angles Converse
C. Alternate Interior Angles Theorem
D. Alternate Interior Angles Converse
E. Consecutive Interior Angles Theorem
F. Consecutive Interior Angles Converse
G. Corresponding Angles Postulate
H. Corresponding Angles Converse

16. Multiple Choice: Which of the following postulates/theorems prove that lines are parallel?

A. Alternate Exterior Angles Theorem
B. Alternate Exterior Angles Converse
C. Alternate Interior Angles Theorem
D. Alternate Interior Angles Converse
E. Consecutive Interior Angles Theorem
F. Consecutive Interior Angles Converse
G. Corresponding Angles Postulate
H. Corresponding Angles Converse

17. Multiple Choice: Which theorem proves that angles are supplementary?

A. Alternate Exterior Angles Theorem
B. Alternate Interior Angles Theorem
C. Corresponding Angles Theorem
D. Consecutive Interior Angles Theorem