BECA / Dr. Huson / Geometry
Unit 8: Year-to-date Regents review
14 February 2023

Name: SOLUTIONS

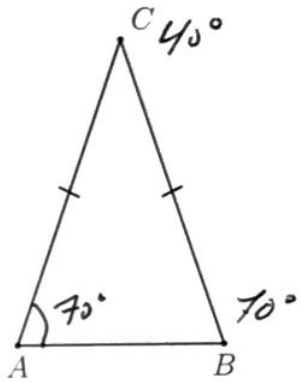
8.2 Classwork: Isosceles triangles and transversals

1. Given isosceles $\triangle ABC$ with $\overline{AC} \cong \overline{BC}$, $m\angle A = 70°$. Find $m\angle B$ and $m\angle C$.

$m\angle B = 70°$

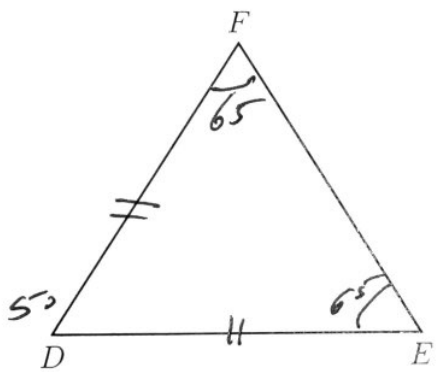
$70 + 70 + m\angle C = 180$

$m\angle C = 40°$



$70+70+40 = 180$ ✓

2. Shown below is isosceles $\triangle DEF$. Mark the congruent legs $\overline{DF} \cong \overline{DE}$. If $m\angle F = 65°$ then find the other two angle measures.



$m\angle E = 65°$

$65 + 65 + m\angle D = 180$

$m\angle D = 50°$

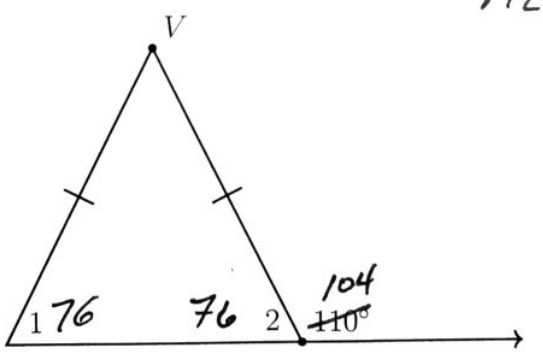
$65+65+50 = 180$ ✓

3. Given the triangle shown with congruent sides marked and external angle measuring 104°. Find the measures of the base angles 1 and 2, and the measure of the vertex angle, $\angle V$.

$m\angle 1 = m\angle 2 = 76°$

$76 + 76 + m\angle V = 180$

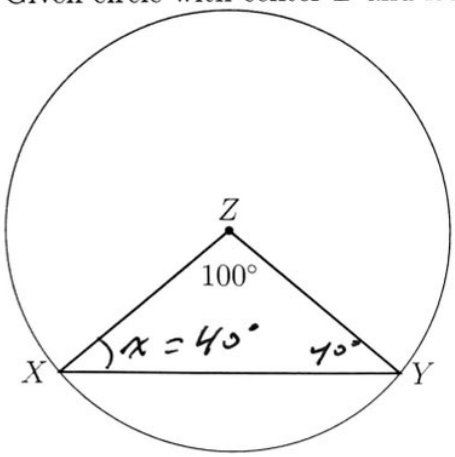
$m\angle V = 28$



$76+76+28 = 180$ ✓

$76 + 28 = 104$ ✓

4. Given circle with center Z and isosceles $\triangle XYZ$. m$\angle Z = 100$. Find m$\angle Y$.



$100 + 2x = 180$

$x = 40°$

5. Given two parallel lines and a transversal, as shown, with $m\angle 6 = 70°$. Write down the value of each angle measure.

(a) $m\angle 1 =$ 110

(b) $m\angle 2 =$ 70

(c) $m\angle 3 =$ 70

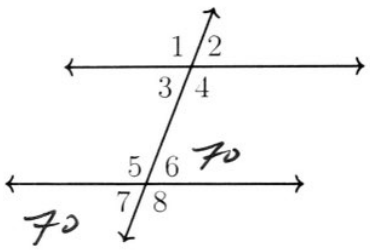
(d) $m\angle 4 =$ 110

(e) $m\angle 5 =$ 110

(f) $m\angle 6 =$ 70

(g) $m\angle 7 =$ 70

(h) $m\angle 8 =$ 110



6. Given two parallel lines and a transversal, as shown. Write down each value, given that $m\angle 5 = 120°$.

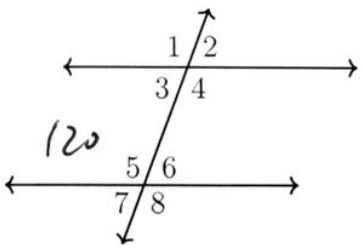
(a) $m\angle 3 =$ 60

(b) $m\angle 2 =$ 60

(c) $m\angle 4 = 2x$. Find x

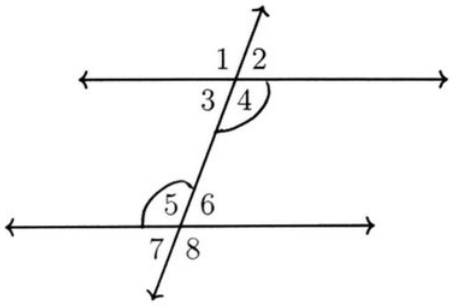
$120 = 2x$

$x = 60$



7. Given two parallel lines and a transversal, with $m\angle 4 = 3x$ and $m\angle 5 = x + 70$. Write an equation, then solve for x.

$3x = x + 70$
$2x = 70$
$x = 35$



$m\angle 4 = 3(35)$
$= 105$

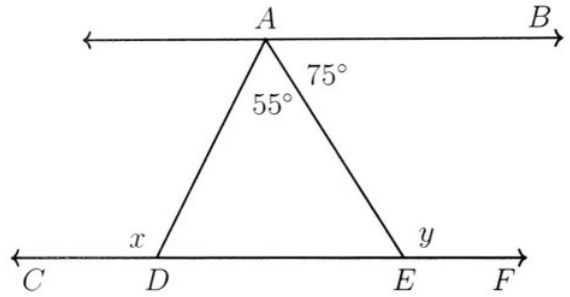
$m\angle 5 = (35) + 70$
$= 105°$ ✓

8. Given parallel lines $\overleftrightarrow{AB} \parallel \overleftrightarrow{CF}$, $m\angle BAE = 75°$ and $m\angle DAE = 55°$.

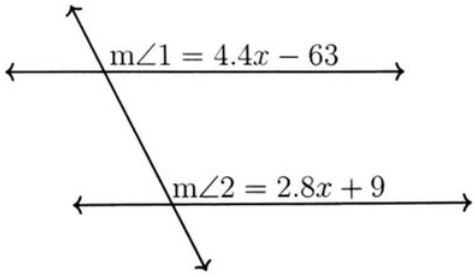
Find $m\angle ADC = x$ and $m\angle AEF = y$.

$x = 55 + 75$
$= 130°$

$75 + y = 180$
$y = 105$



9. Two parallel lines intersect a transversal. Given corresponding angles $m\angle 1 = 4.4x - 63$ and $m\angle 2 = 2.8x + 9$, find the measure of $\angle 1$.

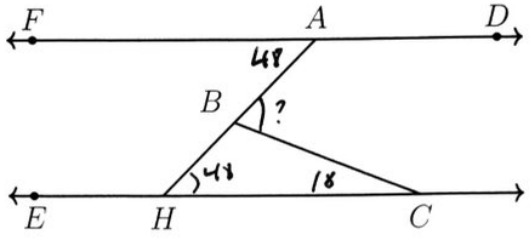


$4.4x - 63 = 2.8x + 9$
$1.6x = 72$
$x = 45$

$m\angle 1 = 4.4(45) - 63$
$= 135$

$m\angle 2 = 2.8(45) + 9$
$= 135$ ✓

10. In the diagram below, $\overline{FAD} \parallel \overline{EHC}$, and $\overline{ABH}$ and $\overline{BC}$ are drawn.

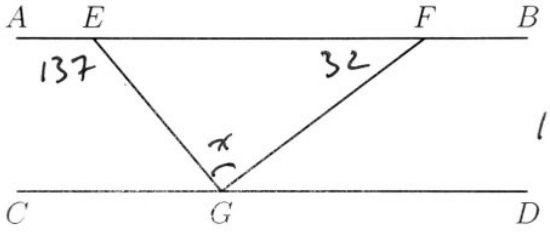


$m\angle ABC = 48+18$
$= 66$

If $m\angle FAB = 48°$ and $m\angle ECB = 18°$, what is $m\angle ABC$?

(a) 18°
(b) 48°
(c) 66°
(d) 114°

11. In the diagram below, $\overline{AEFB} \parallel \overline{CGD}$, and $\overline{GE}$ and $\overline{GF}$ are drawn.

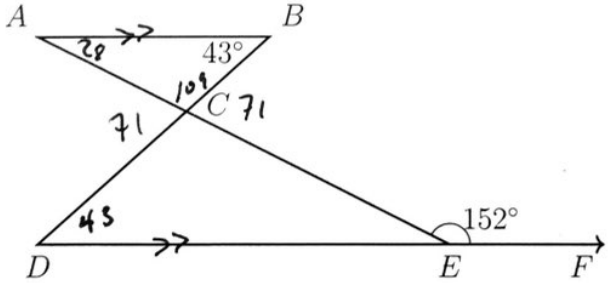


$137 = 32 + x$
$x = 105$

If $m\angle EFG = 32°$ and $m\angle AEG = 137°$, what is $m\angle EGF$?

(a) 11°
(b) 43°
(c) 75°
(d) 105°

12. In the diagram below, $\overline{AB} \parallel \overline{DEF}$, $\overline{AB}$ and $\overline{BD}$ intersect at C, $m\angle B = 43°$, and $m\angle CEF = 152°$.



Which statement is true?

(a) $m\angle D = 28°$
(b) $m\angle A = 43°$
(c) $m\angle ACD = 71°$
(d) $m\angle BCE = 109°$