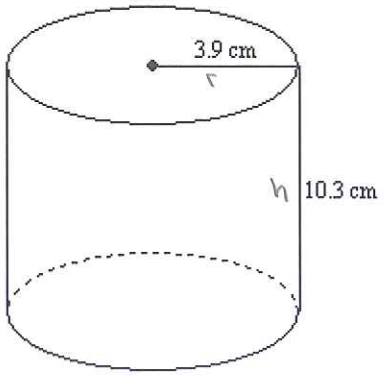
Name:_____ Class:_____ Date: Key

Geometry Chapter 5 Cumulative Review

Indicate the answer choice that best completes the statement or answers the question.

Find the volume of the solid.

1



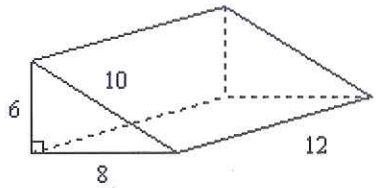
A. 252.4 cm^3 B. 126.2 cm^3

C. 492.2 cm^3 D. 703.8 cm^3

Write formula
substitute given info
simplify

V = Base Area × height
$V = \pi r^2 h$
$V = \pi \cdot (3.9^2)(10.3)$
$V = 492.2\ cm^3$

2



F. 576 $unit^3$ G. 288 $unit^3$

H. 240 $unit^3$ I. 336 $unit^3$

Write formula
Substitute given info
Simplify

V = Area of Base × height
$V = \left(\frac{1}{2} b h\right) \cdot h$
$V = \left(\frac{1}{2} \cdot 6 \cdot 8\right) \cdot 12$
$V = 288\ u^3$

Note: Base is a triangle so

area $= \frac{1}{2} \cdot$ base $\cdot$ height of $\triangle$

$= \frac{1}{2} \cdot 6 \cdot 8$

sides that make right $\angle$

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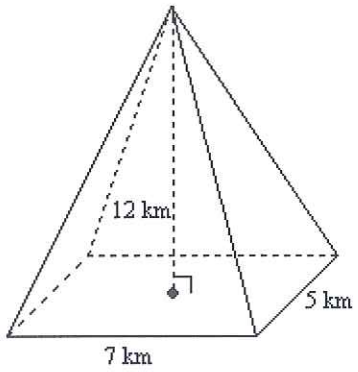
Geometry Chapter 5 Cumulative Review

3



Write formula $V = \frac{1}{3} \cdot \text{area of base} \cdot \text{height}$

Substitute given info $V = \frac{1}{3}(l \cdot w) \cdot h$

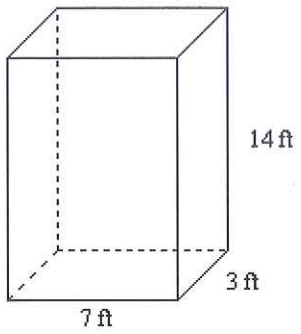
$V = \frac{1}{3}(7 \cdot 5)\,12$

Simplify $V = 140 \text{ km}^3$

A. 140 km^3 B. 112 km^3

C. 420 km^3 D. 155.7 km^3

4



Write formula $V = \text{Area of base} \times \text{height}$

Substitute given info $V = (l \times w)\,h$

$V = 7 \cdot 3 \cdot 14$

Simplify $V = 294 \text{ ft}^3$

F. 24 ft^3 G. 294 ft^3

H. 147 ft^3 I. 686 ft^3

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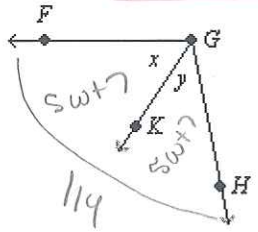
Geometry Chapter 5 Cumulative Review

In the figure, $\overrightarrow{GK}$ bisects $\angle FGH$. so $x = y$



expression for both x & y!

5 If $m\angle FGK = 5w + 7$ and $m\angle FGH = 114$, find w.

A. 10 B. 21.40

C. 57 D. 5

$2(5w+7) = 114$

$10w + 14 = 114$

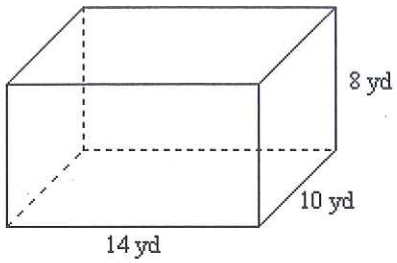
$-14 \quad -14$

$\frac{10w}{10} = \frac{100}{10}$

$w = 10$

Find the surface area of the solid.

6



$SA = 2(l \cdot w) + 2(w \cdot h) + 2(l \cdot h)$

$= 2(14 \cdot 10) + 2(14 \cdot 8) + 2(10 \cdot 8)$

$= 664\ yd^2$

F. 664 yd^2 G. 796 yd^2

H. 332 yd^2 I. 128 yd^2

* It does not matter which value is l, w, h. Just make sure you multiply l to w & h, w to l & h and h to l & w and you are set!

Make a conjecture about the next item in the sequence.

7 1, –8, –17, –26,

-9 -9 -9

$-26 - 9 = -35$

A. -44 B. -53

C. -35 D. –43

pattern: Subtract 9 each time!

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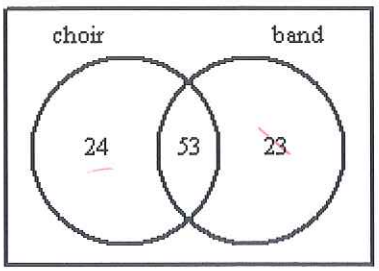
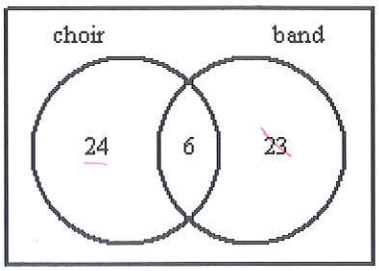
Geometry Chapter 5 Cumulative Review

8 Of the 53 students in performing arts programs at Milford Middle School, 24 sing in the choir only, 6 play in the school band only, and 23 participate in both programs. Which Venn diagram correctly shows this situation?

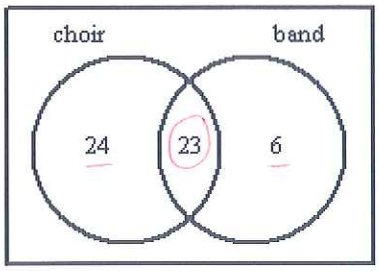
F.



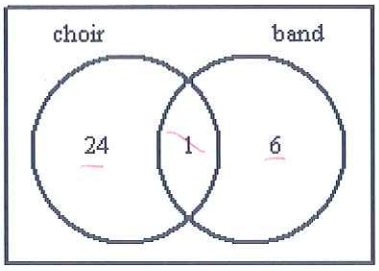
G.



H.



I.



Write the inverse of the conditional statement. Determine whether the inverse is true *or* false. *If it is false, find a counterexample.*

9 **An equilateral triangle has three congruent sides.**

A. A non-equilateral triangle has three congruent sides. False; an isosceles triangle has two congruent sides.

B. A figure that has three non-congruent sides is not an equilateral triangle. True

C. A non-equilateral triangle does not have three congruent sides. True

D. A figure with three congruent sides is an equilateral triangle. True

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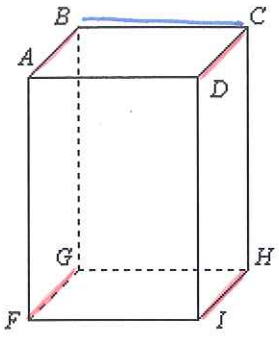
Refer to the figure below.



10 Name all segments parallel to $\overline{GF}$.

F. $\overline{BC}, \overline{AD}, \overline{HI}$ G. $\overline{AB}, \overline{CD}, \overline{HI}$

H. $\overline{CD}, \overline{HI}$ I. $\overline{AB}, \overline{CD}$

$\overline{AB}, \overline{CD}, \overline{HI}$ match!

Analyze figure then look at choices

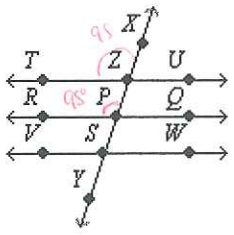
11 Name all segments skew to $\overline{BC}$. Can't be parallel or intersect. NOT ON SAME PLANE!

A. $\overline{FI}, \overline{AD}, \overline{FA}, \overline{DI}$ B. $\overline{FG}, \overline{GH}, \overline{HI}, \overline{FI}$

C. $\overline{CD}, \overline{AB}, \overline{BG}, \overline{CH}$ D. $\overline{GF}, \overline{HI}, \overline{DI}, \overline{AF}$

$\overline{DI}, \overline{AF}$
$\overline{FG}, \overline{HI}$
match!

12 In the figure, $m\angle RPZ = 95$ and $\overleftrightarrow{TU} \parallel \overleftrightarrow{RQ} \parallel \overleftrightarrow{VW}$. Find the measure of angle XZT.



$m\angle RPZ = m\angle XZT$ by Corresponding angles postulate!

F. 75 G. 85

H. 95 I. 65

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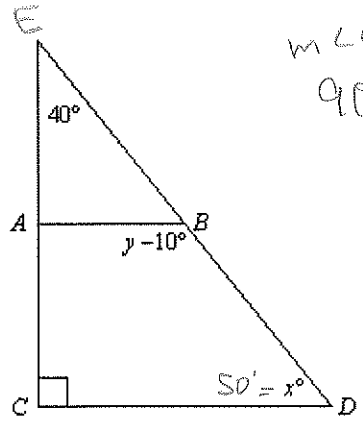
Geometry Chapter 5 Cumulative Review

13 In the figure, $\overline{AB} \parallel \overline{CD}$. Find x and y.



$m\angle C + m\angle D + m\angle E = 180$ Triangle Sum Thm

$90 + x + 40 = 180$

$x + 130 = 180$

$x = 50°$

$m\angle ABD + m\angle D = 180$ Same Side Interior Ls are Supplementary

$y - 10 + 50 = 180$

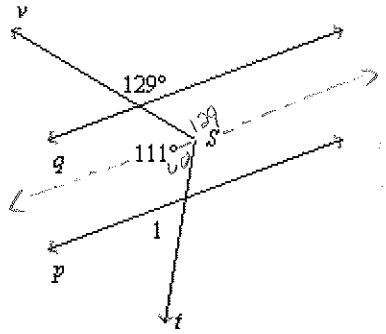
$y + 40 = 180$

$y = 140$

A. $x = 40$, $y = 150$ B. $x = 140$, $y = 50$

C. $x = 50$, $y = 140$ D. $x = 30$, $y = 140$

14 In the figure, $p \parallel q$. Find $m\angle 1$.



Top of $\angle S = 180 - 129 = 51°$ ∠ Linear Pair

Bottom of $\angle S = 111 - 51 = 60°$ ∠ Angle addition postulate

$m\angle 1 = 60°$ b/c it corresponds to the bottom of $\angle S$!

F. $m\angle 1 = 69$ G. $m\angle 1 = 39$

H. $m\angle 1 = 60$ I. $m\angle 1 = 51$

15 *Determine whether* $\overleftrightarrow{WX}$ *and* $\overleftrightarrow{YZ}$ *are* parallel, perpendicular, or neither.

$W(3, -5)$, $X(1, 3)$ $Y(5, -1)$, $Z(7, 5)$

A. perpendicular B. neither

C. parallel

$wx = \frac{3 - -5}{1 - 3} = \frac{8}{-2} = \frac{-4}{1}$

$yz = \frac{5 - -1}{7 - 5} = \frac{6}{2} = \frac{3}{1}$

Slope formula $m = \frac{y_2 - y_1}{x_2 - x_1}$

If Parallel - Lines have same slope

If Perpendicular - Slopes are opposite reciprocal

Product = -1

ex $\frac{2}{3} \cdot \frac{-3}{2} = \frac{-6}{6} = -1$

or $\frac{4}{1} \cdot \frac{-2}{2}$

are slopes of perpendicular Lines

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Geometry Chapter 5 Cumulative Review

Write an equation in point-slope form of the line having the given slope that contains the given point.

16 $m = -0.8, (14.5, 12.8)$

$y - y_1 = m(x - x_1)$

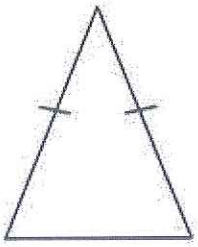
$y - 12.8 = -0.8(x - 14.5)$

F. $y - 14.5 = -0.8(x - 12.8)$ G. $y - 12.8 = -0.8(x - 14.5)$

H. $y = -0.8x - 1.2$ I. $y + 12.8 = -0.8(x - 14.5)$

Classify the triangle by its sides. Choose the best answer.

17



if 2 sides congruent - isosceles

note tick marks!

A. acute B. isosceles

C. equilateral D. scalene

18 Use the distance formula to find the measures of the sides of ΔABC and classify the triangle by its sides.

A(2, 3) **B(1, -1)** **C(3, -1)**

$d = \sqrt{(x-x)^2 + (y-y)^2}$

$AB = \sqrt{(2-1)^2 + (3--1)^2}$

$= \sqrt{1^2 + 4^2} = \sqrt{1+16} = \sqrt{17}$

$BC = \sqrt{(3-1)^2 + (-1--1)^2} = \sqrt{2^2 + 0^2} = \sqrt{4}$

$AC = \sqrt{(3-2)^2 + (3--1)^2}$

$= \sqrt{1^2 + 4^2} = \sqrt{1+16} = \sqrt{17}$

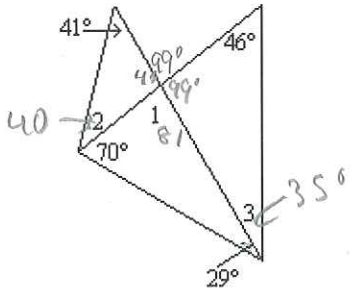
2 sides ≅ isosceles

F. isosceles G. equilateral

H. obtuse I. scalene

Find each measure.

19 $m\angle 1, m\angle 2, m\angle 3$



Triangle Sum Thm

$180 = 70 + 29 + m\angle 1$

$180 = 99 + m\angle 1$

$81 = m\angle 1$

$m\angle 4 = 180 - 81 = 99$

$m\angle 3 + 99 + 46 = 180$

$m\angle 3 + 145 = 180$

$m\angle 3 = 35°$

A. $m\angle 1 = 81, m\angle 2 = 41, m\angle 3 = 29$ B. $m\angle 1 = 82, m\angle 2 = 93, m\angle 3 = 35$

C. $m\angle 1 = 81, m\angle 2 = 40, m\angle 3 = 35$ D. $m\angle 1 = 82, m\angle 2 = 41, m\angle 3 = 29$

$m\angle 2 + 99 + 41 = 180$

$m\angle 2 + 140 = 180$

$m\angle 2 = 40°$

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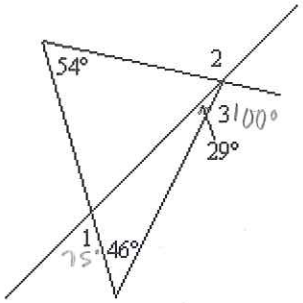
20 $m\angle 1$, $m\angle 2$, $m\angle 3$



$m\angle 1 = 46 + 29 = 75°$ Exterior Angle thm

$m\angle 3 = 54 + 46 = 100°$ Exterior Angle thm

$m\angle 2 = 180 + 29 = 129°$ Vertical Angles thm

F. $m\angle 1 = 51$, $m\angle 2 = 100$, $m\angle 3 = 100$ G. $m\angle 1 = 75$, $m\angle 2 = 151$, $m\angle 3 = 75$

H. $m\angle 1 = 46$, $m\angle 2 = 129$, $m\angle 3 = 129$ I. $m\angle 1 = 75$, $m\angle 2 = 129$, $m\angle 3 = 100$

Name the congruent angles and sides for the pair of congruent triangles.

21 $\triangle GHK \cong \triangle XZT$

G	H	K
X	Z	T

$\angle G \cong \angle X$
$\angle H \cong \angle Z$
$\angle K \cong \angle T$

A. $\angle G \cong \angle T$, $\angle H \cong \angle Z$, $\angle K \cong \angle X$,
segment $GH \cong$ segment TZ,
segment $HK \cong$ segment ZX,
segment $GK \cong$ segment TX

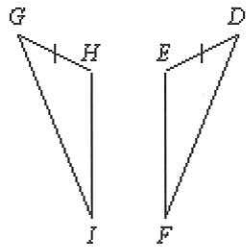
B. $\angle G \cong \angle Z$, $\angle H \cong \angle T$, $\angle K \cong \angle X$,
segment $GH \cong$ segment ZT,
segment $HK \cong$ segment TX,
segment $GK \cong$ segment ZX

C. $\angle G \cong \angle T$, $\angle H \cong \angle X$, $\angle K \cong \angle Z$,
segment $GH \cong$ segment TX,
segment $HK \cong$ segment XZ,
segment $GK \cong$ segment TZ

D. $\angle G \cong \angle X$, $\angle H \cong \angle Z$, $\angle K \cong \angle T$,
segment $GH \cong$ segment XZ,
segment $HK \cong$ segment ZT,
segment $GK \cong$ segment XT

Identify the congruent triangles in the figure.

22



$\angle H \cong \angle E$
$\angle G \cong \angle D$
$\angle I \cong \angle F$

F. $\triangle DEF \cong \triangle IHG$ G. $\triangle EFD \cong \triangle IHG$

H. $\triangle EDF \cong \triangle IGH$ I. $\triangle FDE \cong \triangle IGH$

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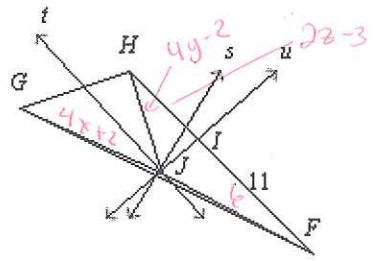
so DISTANCE from intersection to angles is ≅

23 Lines s, t, and u are perpendicular bisectors of the sides of ΔFGH and meet at J. If $JG = 4x + 2$, $JH = 4y - 2$, $JF = 6$ and $HI = 2z - 3$, find x, y, and z.



GJ = JF
4x + 2 = 6
4x = 4
x = 1

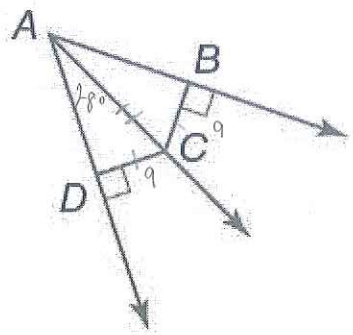
HJ = JF
4y - 2 = 6
4y = 8
y = 2

HI = IF Defn of Bisects
2z - 3 = 11
+3 +3
2z = 14
z = 7

A. $x = 1, y = 2, z = 7$ B. $x = 2, y = 1, z = 4$

C. $x = 0, y = 3, z = 4$ D. $x = 2, y = 1, z = 7$

24 If $m\angle CAD = 28°$, $CD = 9$, and $BC = 9$, find $m\angle CAB$.



Triangles congruent by Hypotenuse Leg ≅
So $m\angle CAB = 28°$

F. 28° G. 56°

H. 62° I. 14°

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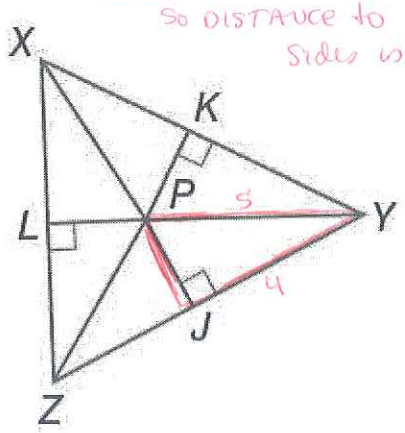
Geometry Chapter 5 Cumulative Review

25 P is the incenter of ΔXYZ. If $PY = 5$ and $JY = 4$, find LP.



So DISTANCE to sides is =

Using $\triangle JPY$, use Pythagorean Thm to find PJ

Legs form rt $\angle$, a & b!

$a^2 + b^2 = c^2$

$PJ^2 + JY^2 = PY^2$

$PJ^2 + 4^2 = 5^2$

$PJ^2 + 16 = 25$

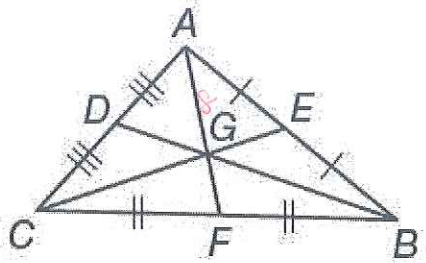
$PJ^2 = 9$

$PJ = 3$

$PJ = PL = PK = 3$

A. 9 B. 4
C. 5 D. 3

26 In ΔABC shown below, if $AG = 8$ what is FG?



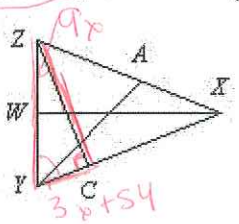
lines are medians so ratio of $\frac{1}{3}, \frac{2}{3}$

Small to Large side

* Large side is 8
* So $GF = \frac{8}{2} = 4$

F. 16 G. 8
H. 24 I. 4

27 $\overline{ZC}$ is an altitude, $m\angle CYW = (3x + 54)°$, and $m\angle WZC = (9x)°$. Find $m\angle WZC$.



Because $\overline{ZC}$ is an altitude $\triangle CYZ$ is a right triangle and the acute angles are complementary!

(1) $9x + (3x + 54) = 90$

$12x + 54 = 90$

$-54 \quad -54$

$12x = 36$

$x = 3$

(2) $m\angle WZC = 9x$

$= 9(3)$

$= 27°$

A. 3° B. 18°
C. 27° D. 63°

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Determine whether the given measures can be the lengths of the sides of a triangle. Write yes *or* no. *Explain.*

28 8.9, 14.2, 17.5

Do they fit the Δ inequality? $14.2 - 8.9 < 17.5 < 8.9 + 14.2$

$5.3 < 17.5 < 23.1$ yes

F. Yes; the 3rd side is the longest side.

G. No; the 3rd side is not greater than the difference of two sides.

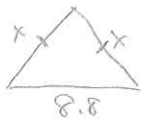
H. True; the length of the 3rd side is between the sum and the difference of the other two sides.

I. False; the sum of two sides is not greater than the 3rd side

29 An isosceles triangle has a base 8.8 units long. If the congruent side lengths have measures to the first decimal place, what is the shortest possible length of the sides?

A. 17.7 B. 4.5

C. 4.3 D. 8.9

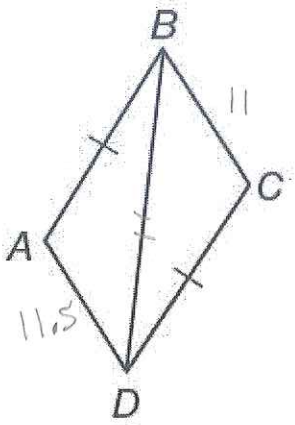


$x + x > 8.8$

$2x > 8.8$

$x > 4.4$

30 In the figure below, $AD = 11.5$ and $BC = 11$. Compare $m\angle ABD$ and $m\angle BDC$.



sides of $\angle ABC$ & $\angle BDC$ are $\cong$ so we can compare their measures by comparing the sides across from the angles

$AD > BC$

so $m\angle ABD > m\angle BDC$

F. $m\angle ABD < m\angle BDC$

G. $m\angle ABD > m\angle BDC$

H. $m\angle ABD = m\angle BDC$

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Answer Key

1 C

2 G

3 A

4 G

5 A

6 F

7 C

8 H

9 C

10 G

11 D

12 H

13 C

14 H

15 B

16 G

17 B

18 F

19 C

20 I

21 D

22 I

Name:_____ Class:_____ Date:_____

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23 A

24 F

25 D

26 F

27 C

28 H

29 B

30 G