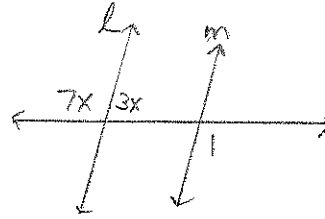


Adv. Geometry ch. 3 Rev.

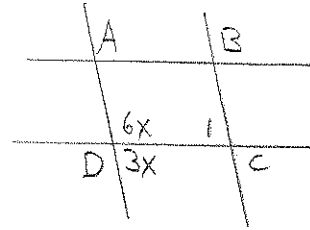
Name Key

- ① Find the measure of $\angle 1$ such that $\ell \parallel m$
 $7x + 3x = 180$
 $10x = 180$
 $x = 18$
 $7(18) = 126$

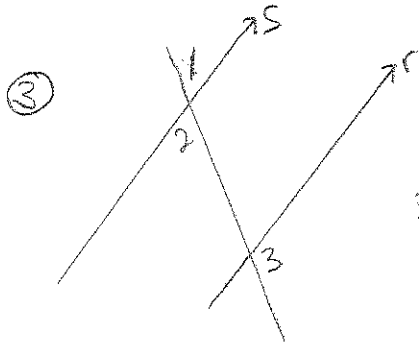


① 126°

- ② Find the measure of $\angle 1$ such that $\overline{AD} \parallel \overline{BC}$
 $9x = 180$
 $x = 20$
 $3x = 60$



② 60°



In this drawing $m\angle 1 = 3x + 14$, $m\angle 2 = 9x + 14$ and $m\angle 3 = 30x + 14$
 Determine whether or not $r \parallel s$. Justify your answer

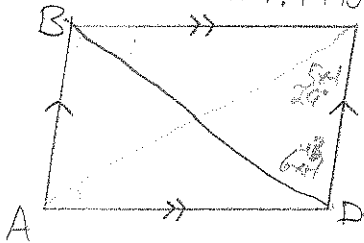
$$3x + 14 = 9x + 14$$

$$0 = 6x \quad \angle 1 = 14$$

$$0 = x \quad \angle 3 = 14$$

③ Not \parallel
 $\angle 1$ & $\angle 2$ are not corresponding or alternate exterior.

- ④ In the parallelogram ABCD, $m\angle DAB = 11x + 1$, $m\angle ABC = 2(7x + 2)$, $m\angle DCB = 6x + 1$
 $m\angle DCA = 5x - 1$. Find the following measures.



$$11x + 1 + 14x + 4 = 180$$

$$25x + 5 = 180$$

$$25x = 175$$

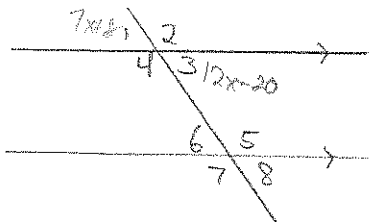
$$x = 7$$

$$x = 7 \quad m\angle DAB = 78^\circ$$

$$m\angle DCB = 78^\circ \quad m\angle ADC = 102^\circ$$

$$m\angle ACB = 49^\circ \quad m\angle ADB = 59^\circ$$

- ⑤ If $m\angle 1 = 7x + 8$, $m\angle 3 = 4(3x - 5)$, Find



$$7x + 8 = 12x - 20$$

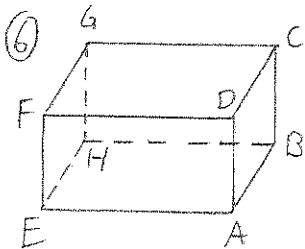
$$28 = 5x$$

$$7\left(\frac{28}{5}\right) + 8 = 180 - \frac{236}{5}$$

$$\frac{196}{5} + \frac{40}{5} = \frac{900}{5} - \frac{236}{5}$$

$$x = \frac{28}{5} \quad m\angle 1 = \frac{236}{5}$$

$$m\angle 5 = \frac{664}{5} \quad m\angle 6 = \frac{236}{5}$$

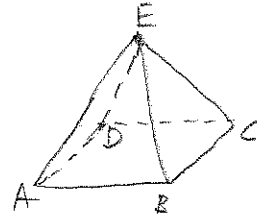


Which line(s) or plane(s) appear to fit the description?

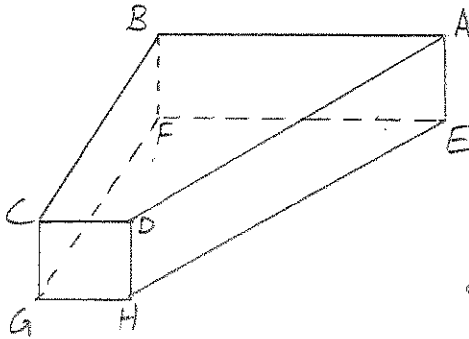
- a) Line(s) parallel to \overline{EH} $\overline{FG}, \overline{AB}$
 b) Line(s) perpendicular to \overline{EH} $\overline{FE}, \overline{GH}, \overline{AE}, \overline{BH}$
 c) Line(s) skew to \overline{CD} and containing point F. \overline{EF}
 d) Plane(s) perpendicular to plane AEH plane FEH, plane GHB, plane CBA, plane DAE
 e) Plane(s) parallel to plane FGC plane BAE

7) Which line segment(s) in the diagram appear to fit the description?

- a) Parallel to \overline{AB} \overline{DC}
 b) Skew to \overline{AB} \overline{DE} \overline{CE}
 c) Parallel to \overline{BC} \overline{AD}



8)



- a) Parallel to \overline{HD} \overline{CG} \overline{AE}
 b) Plane parallel to plane DCH plane ABF
 c) parallel to \overline{BC} \overline{GF}
 d) Skew to \overline{FG} \overline{DH} , \overline{DA} , \overline{AE} , \overline{AB} , \overline{DC}

9) Solve for X.

a) $x+15$
 $x=65$

b) $2x$
 $2x+68=180$
 $2x=112$
 $x=56$

c) $2x-4$
 $2x-4=92$
 $2x=96$
 $x=48$

d) $5x-10$
 $5x-10+75=180$
 $5x+65=180$
 $5x=115$
 $x=23$

e) $3x$
 $x=40$

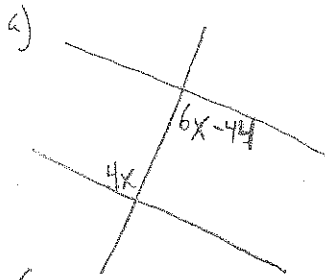
f) $x-2$
 $x-2=75$
 $x=77$

10) Solve for x & y

a) $y-7$
 $y-7+120=180$
 $y=67$
 $3x+123=180$
 $3x=57$
 $x=19$

b) $3x-7$
 $2x+4=47$
 $2x=43$
 $x=21.5$
 $3x-7=56$
 $3x=63$
 $x=21$
 $3y+5+56+47=180$
 $3y+108=180$
 $3y=72$
 $y=24$

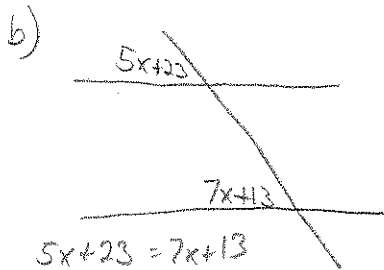
① Find the values of x that make $m \parallel n$



$$6x - 44 = 4x$$

$$2x = 44$$

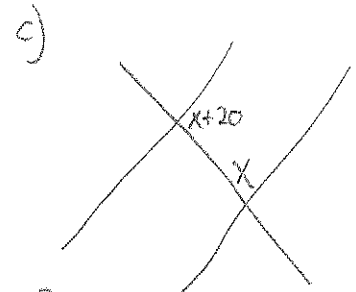
$$x = 22$$



$$5x + 23 = 7x + 13$$

$$10 = 2x$$

$$5 = x$$

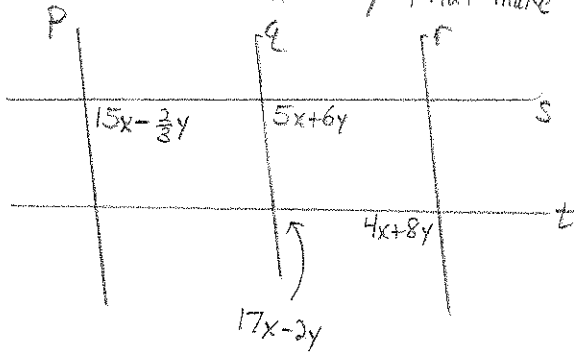


$$2x + 20 = 180$$

$$2x = 160$$

$$x = 80$$

② Find the values of x and y that make $p \parallel q, q \parallel r, p \parallel r$



$$15x - \frac{3}{2}y = 5x + 6y$$

$$17x - 2y + 4x + 8y = 180$$

$$10x - \frac{20}{2}y = 0 \rightarrow 10x = \frac{20}{2}y$$

$$21x + 6y = 180$$

$$\frac{3}{2}x = y$$

$$21x + 6\left(\frac{3}{2}x\right) = 180$$

$$21x + 9x = 180$$

$$30x = 180$$

$$x = 6$$

$$y = 9$$

③ Tell whether the intersection of \vec{AB} and \vec{CD} forms a right angle.

a) $A(-8, 3), B(1, 2), C(0, 9), D(-1, 0)$

$$m_{AB} = -\frac{1}{9}, m_{CD} = \frac{9}{1}$$

$$\vec{AB} \perp \vec{CD}$$

b) $A(3, 2), B(5, 10), C(7, -4), D(3, -3)$

$$m_{AB} = \frac{-8}{2} = -4, m_{CD} = \frac{1}{-4}$$

$$\vec{AB} \perp \vec{CD}$$

④ Find the value of k if the line through the points $(4k+3, k+1)$ and $(k-6, -2k+3)$ is perpendicular to the line through the points $(2, 3)$ and $(2, 8)$.

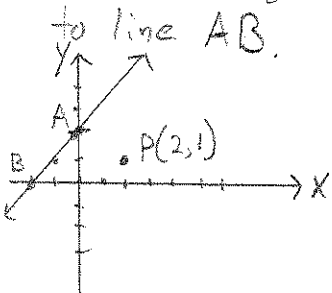
$$\frac{(k+1) - (-2k+3)}{(4k+3) - (k-6)} = 0$$

horizontal line

$m = \frac{5}{0} \Rightarrow \text{undefined} \Rightarrow \text{Vert. Line}$

$$\frac{3k-2}{3k+9} = 0 \rightarrow 3k-2=0 \rightarrow k = \frac{2}{3}$$

⑤ Write an equation of the line that passes through point P and is parallel to line AB .



$$m_{AB} = 1$$

$$y = 1x + b$$

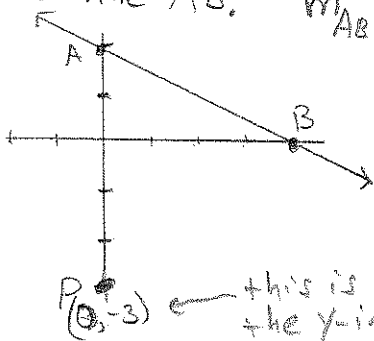
$$1 = 1(2) + b$$

$$1 = 2 + b$$

$$-1 = b$$

$$y = x - 1$$

- 16) Write an equation of the line that passes through point P and is perpendicular to line AB. $m_{AB} = \frac{-3}{4} = -\frac{1}{2}$



$$y = 2x + b$$

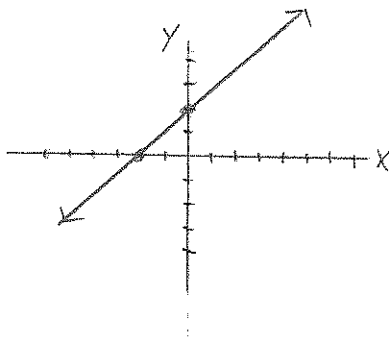
$$y = 2x - 3$$

- 17) Graph $2y - 4 = 2x$

$$2y - 2x = 4$$

$$y\text{-intercept} = 2$$

$$x\text{-intercept} = -2$$



- 18) A line passes through the points $(k+9, -4k-3)$ and $(-2, 1)$ and has a y-intercept of 9. Find the value of k and the equation of the line.

$$y = mx + b$$

$$1 = m(-2) + 9$$

$$1 = -2m + 9$$

$$-8 = -2m$$

$$4 = m$$

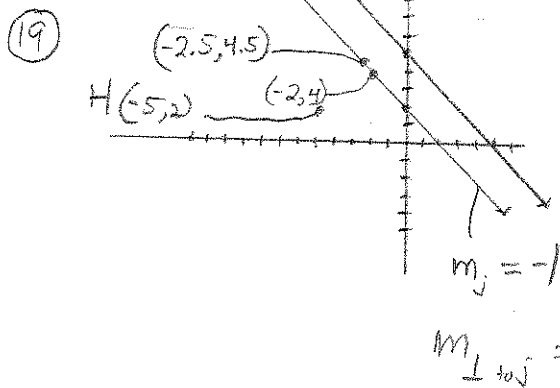
$$\frac{-4k-3-1}{k+9-(-2)} = 4$$

$$\frac{-4k-4}{k+11} = 4 \rightarrow -4k-4 = 4k+44$$

$$-8k = 48$$

$$k = -6$$

$$y = 4x + 9$$



what is the distance from point H to line j?

From H \perp to line j intersects line j @ $(-2.5, 4.5)$

$$d = \sqrt{(-5 - (-2.5))^2 + (2 - 4.5)^2}$$

$$= \sqrt{(-2.5)^2 + (-2.5)^2} = \sqrt{12.5} \approx 3.54$$

- 20) The distance d between the point (x_1, y_1) and the line $Ax + By = C$ is

$$d = \frac{|Ax_1 + By_1 - C|}{\sqrt{A^2 + B^2}}$$

$$d = \frac{|2 \cdot 0 + (1)(5) - 4|}{\sqrt{2^2 + (1)^2}} = \frac{|-9|}{\sqrt{5}} = \frac{9}{\sqrt{5}}$$

find the distance between $(0, 5)$ and $2x - y = 4$