1 $\triangle ABC$ similar to DEF

AB correspond to DE
BC correspond to EF
AC correspond to DF

$\frac{AB}{DE} = \frac{BC}{EF}$

$\frac{3}{9} = \frac{4}{x}$

$3x = 9 \times 4$
$3x = 36$
$x = 12$

EF = 12

2 $\theta HJ = 32°$

3 $\frac{AD}{AB} = \frac{AE}{AC}$ | $20 = 2x$ | CE = 6
$\frac{5}{2} = \frac{x}{4}$ | $x = 10$
| $CE = 10 - 4$

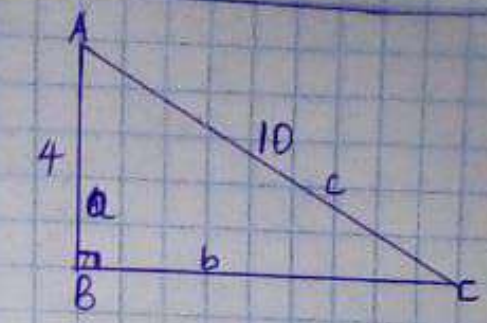
4 FG = 6 GH = 9
FJ = 4 HJ = ?

6 : 4
$\frac{6}{4}^{3} = \frac{3}{2}$

$\frac{3}{2} = \frac{9}{x}$

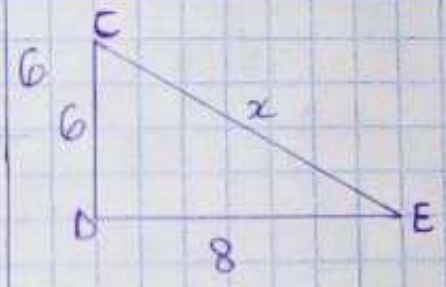
$3x = 18$
$x = 6$
$HJ = 6$

5



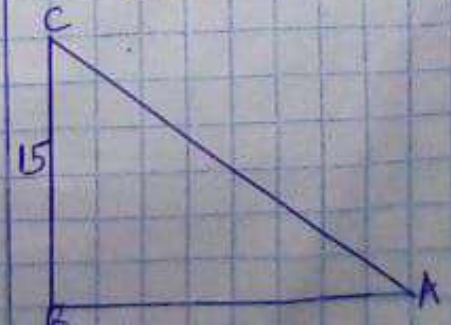
$a^2 + b^2 = c^2$
$4^2 + b^2 = 10^2$
$16 + b^2 = 100$
$b^2 = 100 - 16$
$\sqrt{b^2} = \sqrt{84}$
$b = 9.165$
BC = 9.165

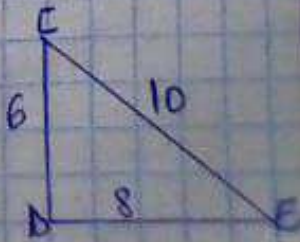
6



$6^2 + 8^2 = x^2$
$36 + 64 = x^2$
$\sqrt{100} = \sqrt{x^2}$
$10 = x$
EC = 10

7 $\frac{AB}{DE} = \frac{AC}{CE}$





$\frac{BC}{DC} = \frac{AC}{EC}$

$\frac{15}{6} = \frac{x}{10}$

$15 \times 10 = 6x$

$150 = 6x$

$25 = x$

$AC = 25$

$AE = AC - CE$

$25 - 10$

$AE = \underline{15}$

8

$\frac{GI}{GK} = \frac{IL}{LK}$

$\frac{GI}{IL} = \frac{GK}{LK}$

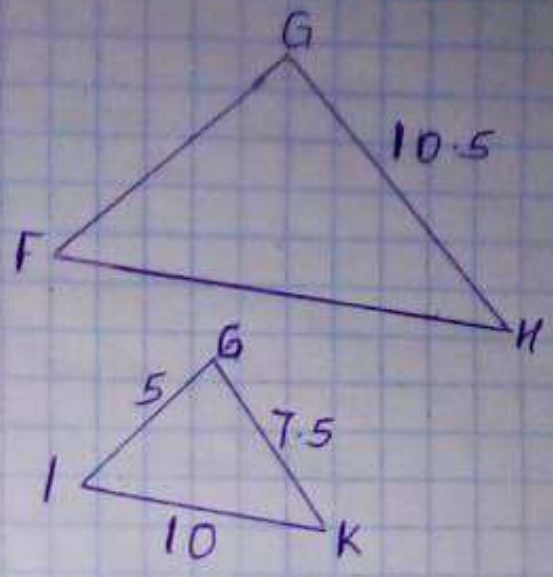
$\frac{5}{4} = \frac{x}{6}$

$30 = 4x$

$7.5 = x$

$\underline{GK = 7.5}$

9) $\frac{FH}{IK} =$



$\frac{GH}{GK} = \frac{GF}{GI}$

$\frac{10.5}{7.5} = \frac{x}{5}$

$52.5 = 7.5x$

$7 = x$

$GF = 7$

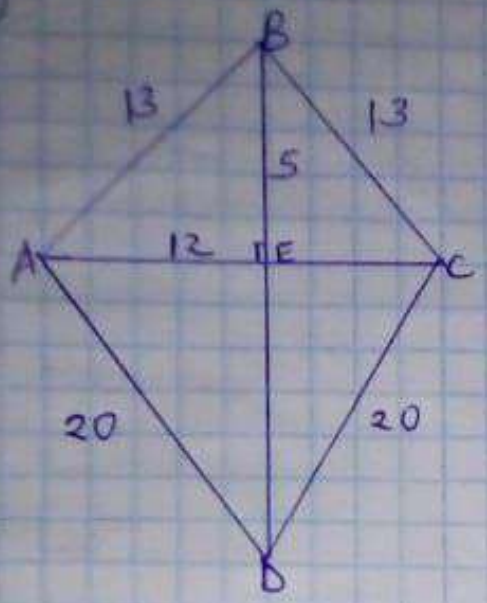
$IF = GF - GI$

$IF = GF - GI$

$= 7 - 5$

$IF = \underline{2}$

10



$AE^2 = 13^2 - 5^2$

$AE^2 = 169 - 25$

$\sqrt{AE^2} = \sqrt{144}$

$AE = 12$

$AC = 12 \times 2 = 24$

$= \underline{24}$

$DE = 20^2 - 12^2$

$= 400 - 144$

$= 256$

$\sqrt{DE} = \sqrt{256}$

$DE = 16$

$BD = 5 + 16$

$= \underline{\underline{21}}$

Area $= \frac{1}{2} \times 21 \times 24^{12}$

$= 21 \times 12$

$= 252$

$= 252$