

Geometry Chapter 9 test study reminder sheet

Simplifying Radicals

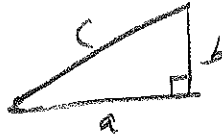
- Rewrite as two square roots multiplied...separate out a 'perfect square'
- Get radical off bottom by multiplying top and bottom by that radical

$$\sqrt{24} = \sqrt{4 \cdot 6} = 2\sqrt{6}$$

$$\frac{\sqrt{5}}{\sqrt{2}} = \frac{\sqrt{5} \cdot \sqrt{2}}{\sqrt{2} \cdot \sqrt{2}} = \frac{\sqrt{10}}{2}$$

Right Triangles – finding missing sides – 3 ways

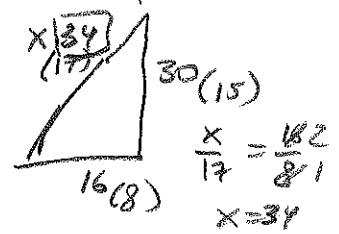
1) Pythagorean Theorem (always works)



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

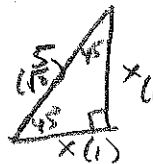
2) Pythagorean Triples (if you are given 2 sides)

- Find number that goes into both sides and divide (write in parentheses)
- Find matching triple
- Make ratios with missing side and cross-multiply to solve.



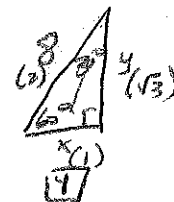
3) Special triangles (30-60 or 45-45)

- How do you know?
 - If you are given angle
 - If sides are equal (45-45), or if long side is twice short side (30-60)
- Write pattern on diagram ($x, x, x\sqrt{2}$ for 45-45, $x, 2x, x\sqrt{3}$ for 30-60) in parentheses.
- Make ratios with missing side and cross-multiply to solve.



$$\frac{x}{\sqrt{2}} = \frac{5}{1}$$

$$x = \frac{5\sqrt{2}}{\sqrt{2}} = 5\sqrt{2}$$



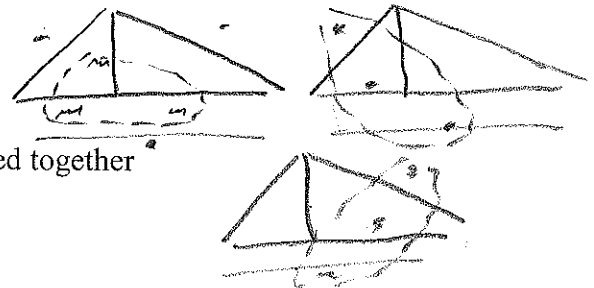
$$\frac{8}{2} = \frac{x}{1}$$

$$2x = 8$$

$$x = 4$$

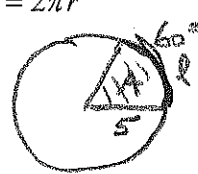
Altitude-on-Hypotenuse Triangles

- Put long side of big triangle on bottom
- Find 'group'
- (Top number in group)² = bottom 2 numbers multiplied together



Arc length and sector

- Circumference (whole distance around circle): $C = 2\pi r$
- Area (whole area of circle): $A = \pi r^2$
- arc length = (fraction)(circumference)
- sector = (fraction)(whole area of circle)
- fraction = (degrees in arc)/(360)



$$l = \left(\frac{60}{360}\right) (2\pi(5))$$

$$A = \left(\frac{60}{360}\right) (\pi(5)^2)$$

Other things to remember:

- 3D shapes...solve by making right triangles with sides you need to find.
- Equilateral triangles – all angles are 60 degrees (usually turns into a 30-60 special triangle)
- Distance between 2 points: distance formula $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ plug in coordinate values. to find the distance.

