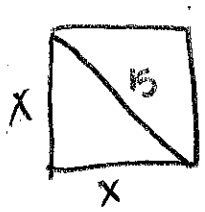
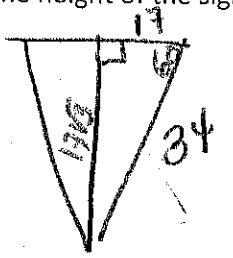
IM 10 3.3 and 3.4 Day 2 Homework

1. The **diagonal** of a square is 15 inches. Find the **area** of this square.



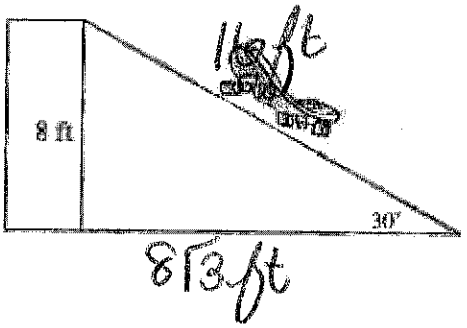
$x = \frac{15}{\sqrt{2}} = \frac{15\sqrt{2}}{2}$ $A = bh = \frac{15\sqrt{2}}{2} \cdot \frac{15\sqrt{2}}{2} = \frac{225 \cdot 2}{4} = \frac{225}{2}$ in^2

2. Joe saw a "Yield" sign and "borrowed it." He wanted to hang it up in his room because it looked cool and it was in the shape of an Equilateral Triangle. The length of one side is 34 inches. What is the height of the sign?



$h = 17\sqrt{3}$ in

3. Jeremy is going to show off his skateboarding abilty to his Geometry class. He has a skate board ramp must be set up to rise from the ground at 30°. If the height from the ground to the platform is 8 feet, how far is the ramp to the platform? How long is the ramp up to the top of the platform?

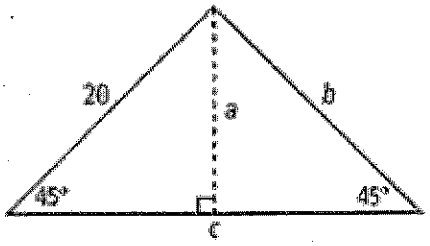


ramp = 16 ft

ramp to platform = $8\sqrt{3}$ ft

Find the value of each variable. If your answer is not an integer, express it in simplest radical form.

18.



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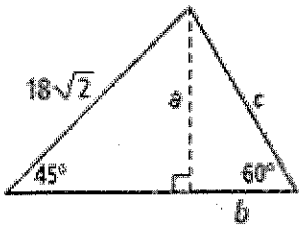
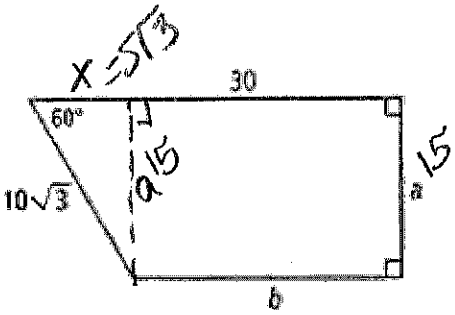
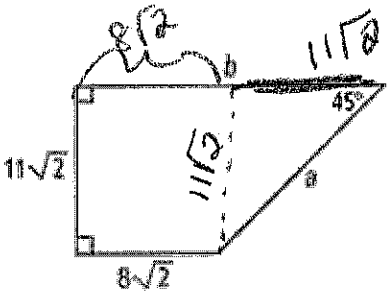


20.



21.



18. $a = \frac{20}{\sqrt{2}} = 10\sqrt{2}$ $c = 10\sqrt{2} + 10\sqrt{2} = 20\sqrt{2}$ $b = 20$

19. $a = 18$ $b = \frac{18}{\sqrt{3}} = 6\sqrt{3}$ $c = 12\sqrt{3}$

20. $x = 5\sqrt{3}$ so $a = 5\sqrt{3} \cdot \sqrt{3} = 5 \cdot 3 = 15$ $b = 30 - 5\sqrt{3}$

21. $a = 11\sqrt{2} \cdot \sqrt{2} = 11 \cdot 2 = 22$ $b = 8\sqrt{2} + 11\sqrt{2} = 19\sqrt{2}$