

BE - Geometry 1 | TUESDAY 11-15-11

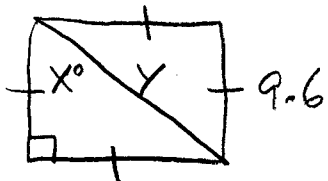
① Find the surface area of a cube with sides:

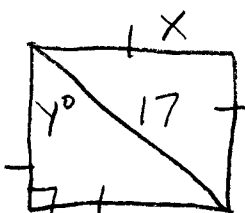
Ⓐ 4 in.

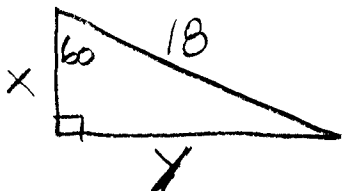
Ⓑ $\frac{2}{3}$ ft.

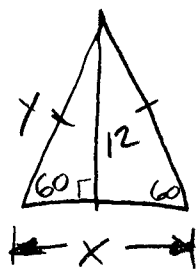
Ⓒ $\sqrt{5}$ m

Homework Review: Pg 360 #12-19

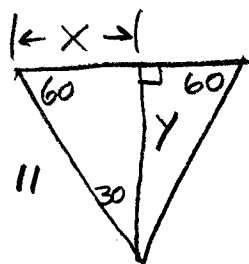
⑫  $45-45-90 \Rightarrow \boxed{X = 45^\circ}$
 $\therefore \boxed{Y = 9.6\sqrt{2}}$

⑬  $45-45-90 \Rightarrow \boxed{Y = 45^\circ}$
 $\therefore X = \frac{17}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \boxed{\frac{17\sqrt{2}}{2}}$

⑭  $30-60-90$
 $\boxed{X = \frac{18}{2} = 9}$
 $\therefore \boxed{Y = 9\sqrt{3}}$

⑮  $30-60-90 \Rightarrow \frac{1}{2}X\sqrt{3} = 12$
 $X\sqrt{3} = 24$
 $X = \frac{24}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$
 $X = \frac{24\sqrt{3}}{3}$
 $\boxed{X = 8\sqrt{3}}$
 $\therefore \boxed{Y = X = 8\sqrt{3}}$

(16)

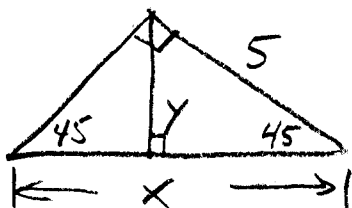


$$30-60-90 \Rightarrow 2x = 11$$

$$\boxed{x = \frac{11}{2}}$$

$$\therefore \boxed{y = \frac{11\sqrt{3}}{2}}$$

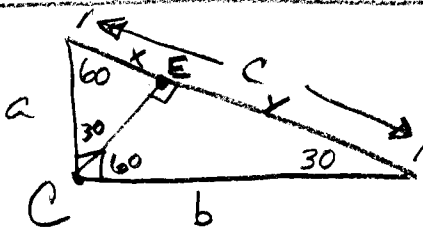
(17)



$$45-45-90 \Rightarrow$$

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

$$\therefore \frac{1}{2}(5\sqrt{2}) = \boxed{y = \frac{5}{2}\sqrt{2}}$$



(18) $a = 10\sqrt{3}$ Find CE and y

$$30-60-90 \Rightarrow 2x = 10\sqrt{3}$$

$$x = 5\sqrt{3}$$

$$\therefore CE = (5\sqrt{3})(\sqrt{3})$$

$$\boxed{CE = 15}$$

$$\therefore \boxed{y = 15\sqrt{3}}$$

(19) $x = 7\sqrt{3}$ Find a, CE, y, b

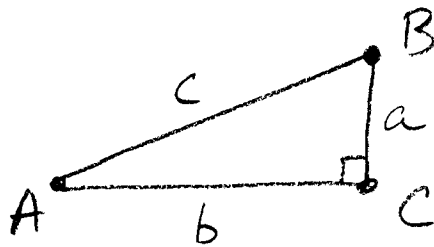
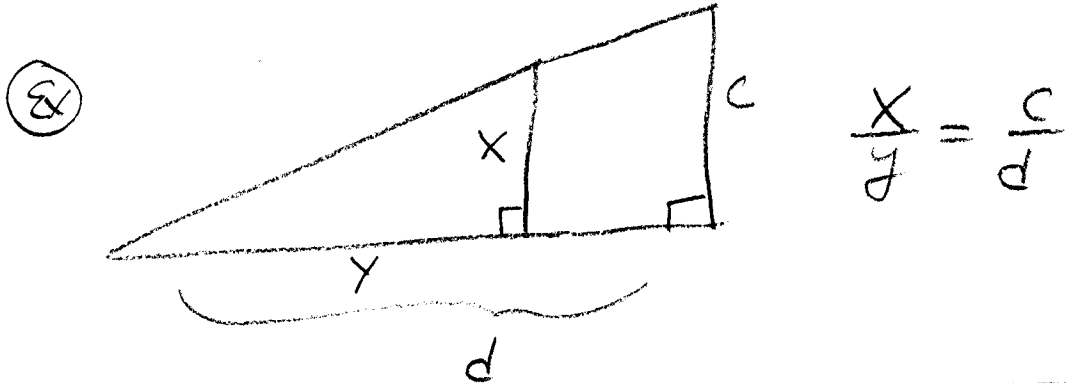
$$30-60-90 \Rightarrow a = 2(7\sqrt{3}) = \boxed{14\sqrt{3} = a}$$

$$CE = \sqrt{3}(7(\sqrt{3})) = \boxed{21 = CE}$$

$$\boxed{y = 21\sqrt{3}}$$

$$b = 2(21) = \boxed{42 = b}$$

For any right Δ , the ratio of the sides are constant. These have been named as follows:



$$\sin A = \frac{a}{c} = \frac{\text{opposite}}{\text{hypotenuse}}$$

SOH

$$\cos A = \frac{b}{c} = \frac{\text{adjacent}}{\text{hypotenuse}}$$

CAH

$$\tan A = \frac{a}{b} = \frac{\text{opposite}}{\text{adjacent}}$$

TOA

Ch. 7-4 Trigonometry

SOH CAH TOA

$\sin = o/h$

$\cos = a/h$

$$\tan = o/a = \text{rise/run}$$

$$\tan(0) = 0, \tan(90) = \text{undefined}, \tan(45) = 1$$

Table: Trigonometric Functions

Use for angles
between 0 and
45 degrees.

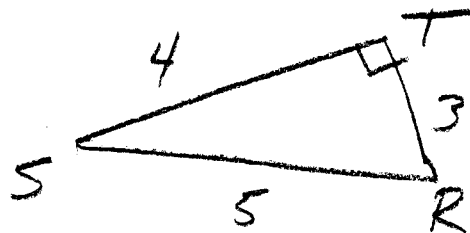
Degrees	Radians	Sin	Cos	Tan	Cot	
0	0.0000	0.0000	1.0000	0.0000		90
1	0.0175	0.0175	0.9998	0.0175	57.290	89
2	0.0349	0.0349	0.9994	0.0349	28.636	88
3	0.0524	0.0523	0.9986	0.0524	19.081	87
4	0.0698	0.0698	0.9976	0.0699	14.301	86
5	0.0873	0.0872	0.9962	0.0875	11.430	85
6	0.1047	0.1045	0.9945	0.1051	9.5144	84
7	0.1222	0.1219	0.9925	0.1228	8.1443	83
8	0.1396	0.1392	0.9903	0.1405	7.1154	82
9	0.1571	0.1564	0.9877	0.1584	6.3138	81
10	0.1745	0.1736	0.9848	0.1763	5.6713	80
11	0.1920	0.1908	0.9816	0.1944	5.1446	79
12	0.2094	0.2079	0.9781	0.2126	4.7046	78
13	0.2269	0.2250	0.9744	0.2309	4.3315	77
14	0.2443	0.2419	0.9703	0.2493	4.0108	76
15	0.2618	0.2588	0.9659	0.2679	3.7321	75
16	0.2793	0.2756	0.9613	0.2867	3.4874	74
17	0.2967	0.2924	0.9563	0.3057	3.2709	73
18	0.3142	0.3090	0.9511	0.3249	3.0777	72
19	0.3316	0.3256	0.9455	0.3443	2.9042	71
20	0.3491	0.3420	0.9397	0.3640	2.7475	70
21	0.3665	0.3584	0.9336	0.3839	2.6051	69
22	0.3840	0.3746	0.9272	0.4040	2.4751	68
23	0.4014	0.3907	0.9205	0.4245	2.3559	67
24	0.4189	0.4067	0.9135	0.4452	2.2460	66
25	0.4363	0.4226	0.9063	0.4663	2.1445	65
26	0.4538	0.4384	0.8988	0.4877	2.0503	64
27	0.4712	0.4540	0.8910	0.5095	1.9626	63
28	0.4887	0.4695	0.8829	0.5317	1.8807	62
29	0.5061	0.4848	0.8746	0.5543	1.8040	61
30	0.5236	0.5000	0.8660	0.5774	1.7321	60
31	0.5411	0.5150	0.8572	0.6009	1.6643	59
32	0.5585	0.5299	0.8480	0.6249	1.6003	58
33	0.5760	0.5446	0.8387	0.6494	1.5399	57
34	0.5934	0.5592	0.8290	0.6745	1.4826	56
35	0.6109	0.5736	0.8192	0.7002	1.4281	55
36	0.6283	0.5878	0.8090	0.7265	1.3764	54
37	0.6458	0.6018	0.7986	0.7536	1.3270	53
38	0.6632	0.6157	0.7880	0.7813	1.2799	52
39	0.6807	0.6293	0.7771	0.8098	1.2349	51
40	0.6981	0.6428	0.7660	0.8391	1.1918	50
41	0.7156	0.6561	0.7547	0.8693	1.1504	49
42	0.7330	0.6691	0.7431	0.9004	1.1106	48
43	0.7505	0.6820	0.7314	0.9325	1.0724	47
44	0.7679	0.6947	0.7193	0.9657	1.0355	46
45	0.7854	0.7071	0.7071	1.0000	1.0000	45
Cos	Sin	Cot	Tan	Radians	Degrees	

Use for angles
between 45 and
90 degrees.

SOHCAHTOA

EX1
pg 365

Find the $\sin$, $\cos$, $\tan$ of $\angle R$, $\angle S$



$$\sin R = \frac{o}{h} = \frac{4}{5} = 0.8$$

$$\cos R = \frac{a}{h} = \frac{3}{5} = 0.6$$

$$\tan R = \frac{o}{a} = \frac{4}{3} = 1.\bar{3}$$

$$\sin S = \frac{o}{h} = \frac{3}{5} = 0.6$$

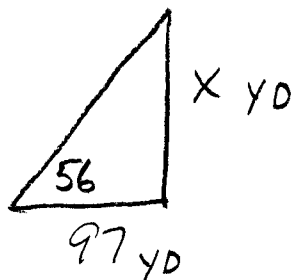
$$\cos S = \frac{a}{h} = \frac{4}{5} = 0.8$$

$$\tan S = \frac{o}{a} = \frac{3}{4} = 0.75$$

Using trig. ratios to find a length

EX 3
Pg 366

Find X



$$\tan 56 = \frac{X}{97}$$

$$1.4826 = \frac{X}{97}$$

$$97(1.4826) = X$$

$$\boxed{143.8 \text{ yd} = X}$$

CALC. OK for
THIS STEP ONLY

If you know the trig. ratio and want to find the angle, use the inverse trig. function $\sin^{-1}$, $\cos^{-1}$, $\tan^{-1}$

(EX) $\sin^{-1} .6428 = \theta$ read "the angle whose sin is .6428"

or $\sin \theta = .6428 \therefore \boxed{\theta \approx 40^\circ}$

Homework: Pg 368 # 19-47 odd