

Rennen.Tech.Talk

with George Costa

Gear Ratios Part II

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Last month we talked about the topic of Gear Inches and some of the myths, facts and history surrounding this concept. This month I will present a way of quickly computing and relating any 20" gear ratio to a known and trusted standard, the 44-16.

Time and time again I find people want to know how their gear stacks up to the 44-16. There is a very simple way of computing this but we'll need a little algebra to help us out. The following equation shows the relationship between any gear you would like to use and a 16 tooth cog.

$$\frac{X}{16} = \frac{\text{Front Gear}}{\text{Rear Cog}}$$

Once we solve for the unknown X we will know how your choice of gearing stacks up against the 44-16. First we need to solve our equation. Our goal is to get the unknown variable X all by itself.

$$16 \times \frac{X}{16} = 16 \times \frac{\text{Front Gear}}{\text{Rear Cog}}$$

By multiplying both sides of the equation by 16

we will effectively isolate our unknown variable. Since, $16 \times \frac{X}{16} = 1 \times X$, our equation now looks like the following:

$$X = 16 \times \frac{\text{Front Gear}}{\text{Rear Cog}}$$

Now for a 20" wheel we can relate different gear ratios to the 44-16. Please note this does not work between different rear tire sizes; for that please read last month's article and compute your roll out.

I have created a table using the above equation for everyone's convenience:

From the table above you can see how close some of these gearing combinations are to the standard 44-16. For example, I ride a 39-14 which, based on the table, equals a 44.57-16, which is almost exactly between riding a 44 and a 45 tooth front chainring.

There has been a recent trend of riders using strange size gear ratios for racing. Being the only manufacturer of 4 bolt chainrings in a large range (32T-52T) we are seeing lots of riders moving toward the 47T and 50T options. These riders are looking to get that slight edge on their competition by using a ratio which is fractions above the standard 44-16. The table provided will hopefully help racers decide which gearing combination is right for them, in an easy to understand manner.

I hope you enjoyed the article. Next month we'll talk about materials used in BMX components.

Rear Cog	Front Gear																	
	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
13	43.08	44.31	45.54	46.77	48.00	49.23	50.46	51.69	52.92	54.15	55.38	56.62	57.85	59.08	60.31	61.54	62.77	64.00
14	40.00	41.14	42.29	43.43	44.57	45.71	46.86	48.00	49.14	50.29	51.43	52.57	53.71	54.86	56.00	57.14	58.29	59.43
15	37.33	38.40	39.47	40.53	41.60	42.67	43.73	44.80	45.87	46.93	48.00	49.07	50.13	51.20	52.27	53.33	54.40	55.47
16	35.00	36.00	37.00	38.00	39.00	40.00	41.00	42.00	43.00	44.00	45.00	46.00	47.00	48.00	49.00	50.00	51.00	52.00
17	32.94	33.88	34.82	35.76	36.71	37.65	38.59	39.53	40.47	41.41	42.35	43.29	44.24	45.18	46.12	47.06	48.00	48.94
18	31.11	32.00	32.89	33.78	34.67	35.56	36.44	37.33	38.22	39.11	40.00	40.89	41.78	42.67	43.56	44.44	45.33	46.22
19	29.47	30.32	31.16	32.00	32.84	33.68	34.53	35.37	36.21	37.05	37.89	38.74	39.58	40.42	41.26	42.11	42.95	43.79