

AMC 8 Tables

Squares	Cubic	Pythagorean triples
$11^2 = 121$	$2^3 = 8$	(3,4,5)
$12^2 = 144$	$3^3 = 27$	(6,8,10)
$13^2 = 169$	$4^3 = 64$	(9,12,15)
$14^2 = 196$	$5^3 = 125$	(12,16,20)
$15^2 = 225$	$6^3 = 216$	(15,20,25)
$16^2 = 256$	$7^3 = 343$	(5,12,13) (8,15,17) (7,24,25)
$17^2 = 289$		
$18^2 = 324$	Power of 2	
$19^2 = 361$		
$20^2 = 400$	$2^4 = 16$	
$21^2 = 441$	$2^5 = 32$	
$22^2 = 484$	$2^6 = 64$	
$23^2 = 529$	$2^7 = 128$	
$24^2 = 576$	$2^8 = 256$	
$25^2 = 625$	$2^9 = 512$	
	$2^{10} = 1024$	

Sum

$$\begin{aligned}1+2+3+4+5 &= 15 \\1+2+3+4+5+6 &= 21 \\1+2+3+4+5+6+7 &= 28 \\1+2+3+4+5+6+7+8 &= 36 \\1+2+3+4+5+6+7+8+9 &= 45 \\1+2+3+4+5+6+7+8+9+10 &= 55\end{aligned}$$

Factorial

$$\begin{aligned}3! &= 6 \\4! &= 24 \\5! &= 120 \\6! &= 720\end{aligned}$$

Square Roots

$$\sqrt{121} = 11$$

$$\sqrt{144} = 12$$

$$\sqrt{169} = 13$$

$$\sqrt{196} = 14$$

$$\sqrt{225} = 15$$

$$\sqrt{256} = 16$$

$$\sqrt{289} = 17$$

$$\sqrt{324} = 18$$

$$\sqrt{361} = 19$$

$$\sqrt{400} = 20$$

$$\sqrt{441} = 21$$

$$\sqrt{484} = 22$$

$$\sqrt{529} = 23$$

$$\sqrt{576} = 24$$

$$\sqrt{625} = 25$$

Fraction to Decimal

$$1/8 = 0.125 = 12.5\%$$

$$3/8 = 0.375$$

$$5/8 = 0.625$$

$$7/8 = 0.875$$

$$1/5 = 0.2 = 20\%$$

$$2/5 = 0.4$$

$$3/5 = 0.6$$

$$4/5 = 0.8$$

Repeating Decimal

$$1/3 = 0.\overline{3}$$

$$1/9 = 0.\overline{1}$$

$$2/9 = 0.\overline{2}$$

$$4/9 = 0.\overline{4}$$

$$1/6 = 0.\overline{16}$$

Prime Numbers

2, 3, 5, 7, 11, 13, 17, 19, 23,
29, 31, 37, 41, 43, 47, 53, 59,
61, 67, 71, 73, 79, 83, 89, 97

Prime Factorization

$$27 = 3^3$$

$$32 = 2^5$$

$$33 = 3 \times 11$$

$$75 = 3 \times 25$$

$$36 = 2^2 \times 3^2$$

$$76 = 4 \times 19$$

$$51 = 3 \times 17$$

$$78 = 6 \times 13$$

$$52 = 4 \times 13$$

$$84 = 7 \times 12$$

$$56 = 7 \times 8$$

$$85 = 5 \times 17$$

$$57 = 3 \times 19$$

$$87 = 3 \times 29$$

$$69 = 3 \times 23$$

$$91 = 7 \times 13$$

$$72 = 8 \times 9$$

$$92 = 4 \times 23$$

$$74 = 2 \times 37$$

$$93 = 3 \times 31$$

Divisibility Rules

- **2** if the last digit of N is 2, 4, 6, 8, or 0;
- **3** if the sum of digits of N is a multiple of 3;
- **4** if the last 2 digits of N are a multiple of 4;
- **5** if the last digit of N is either 0 or 5;
- **6** if N is divisible by both 2 and 3;
- **8** if the last 3 digits of N are a multiple of 8;
- **9** if the sum of digits of N is a multiple of 9;

Combination

$$\binom{5}{2} = \frac{5 \times 4}{2 \times 1} = 10$$

$$\binom{5}{3} = \frac{5 \times 4 \times 3}{3 \times 2 \times 1} = 10$$

$$\binom{6}{2} = 15$$

$$\binom{6}{3} = 20$$

$$\binom{4}{3} = \binom{4}{1} = 4$$

$$\binom{3}{2} = \binom{3}{1} = 3$$