

These are the formulas students entering Math 45 need to be proficient with. Students will have additional formulas that are part of the curriculum and must have mastery of those also for the department final.

## Formula & Conversion Sheet for Math 45

### Students Need to Know the Following by Memory

Units tell us how we are measuring items: inches, feet, yards, miles, meters, pounds, ounces, tons, liters, grams are a few of the units we use.

1. Area of a square:  $A = s^2$  remember answer will have square units.
2. Perimeter of a square:  $P = 4s$  must include units with answer.
3. Area of a rectangle:  $A = lw$  remember answer will have square units.
4. Perimeter of a rectangle:  $P = 2l + 2w$  must include units with answer.
5. Area of a circle:  $A = \pi r^2$  remember answer will have square units.
6. Circumference of a circle:  $C = 2\pi r$  or  $C = \pi D$  must include units with answer.
7. Diameter of a circle:  $D = 2r$  must include units with answer.
8. Radius of a circle:  $r = \frac{D}{2}$  must include units with answer.
9. Area of a triangle:  $A = \frac{1}{2}bh$  or  $A = \frac{bh}{2}$  remember answer will have square units
10. Perimeter of a triangle:  $P = a + b + c$  must include units with answer.
11. The three angles of a triangle:  $A + B + C = 180^\circ$  answer must have degree symbol.
12. Distance = rate x time:  $D = rt$  the correct unit must be included with the answer.
13. Volume of a rectangular solid (box):  $V = lwh$  units will be cubic units.
14. Simple interest formula Interest = principal x rate x time:  $I = Prt$
15. Pythagorean theorem:  $a^2 + b^2 = c^2$  must include units with answer.
16. Must know the following perfect square roots:  
 $(\sqrt{4}, \sqrt{9}, \sqrt{16}, \sqrt{25}, \sqrt{36}, \sqrt{49}, \sqrt{64}, \sqrt{81}, \sqrt{100}, \sqrt{121}, \sqrt{144}, \sqrt{169})$
17. Must know the following perfect cubic roots:  
 $(\sqrt[3]{-1}, \sqrt[3]{1}, \sqrt[3]{-8}, \sqrt[3]{8}, \sqrt[3]{-27}, \sqrt[3]{27}, \sqrt[3]{-64}, \sqrt[3]{64}, \sqrt[3]{-125}, \sqrt[3]{125})$
18. Must know the following perfect 4<sup>th</sup> roots:  $(\sqrt[4]{1}, \sqrt[4]{16}, \sqrt[4]{81})$
19. Must know the following powers of 2:  $(2^2, 2^3, 2^4, 2^5, 2^6, 2^7)$
20. Must know the following U.S. Conversions:  
 ( 12 inches = 1 foot; 3 feet = 1 yard; 36 inches = 1 yard)
21. Must know the following time conversions:  
 (60 seconds = 1 minute; 60 minutes = 1 hour; 24 hours = 1 day; 7 days = 1 week;  
 52 weeks = 1 year)