

**DIRECTIONS:** Solve. For #1-4, also find  $k$  (the constant of variation).

1. If  $y$  varies directly as  $x$ , and  $y = 6$  when  $x = 15$ , find  $y$  when  $x = 25$ .
2. If  $r$  is directly proportional to  $t$ , and  $r = 40$  when  $t = 15$ , find  $t$  when  $r = 64$ .
3. If  $p$  is directly proportional to  $q$ , and  $p = 9$  when  $q = 7.5$ , find  $q$  when  $p = 24$ .
4. If  $a$  varies directly as  $b$ , and  $a = 75$  when  $b = 40$ , find  $a$  when  $b = 12$ .
5. If  $m$  varies directly as  $n^2$ , and  $m = 12$  when  $n = 2$ , find  $m$  when  $n = 5$ .
6. If  $y$  is directly proportional to  $\sqrt{x}$ , and  $y = 25$  when  $x = 3$ , find  $x$  when  $y = 100$ .
7. If  $p$  is directly proportional to  $r - 2$ , and  $p = 20$  when  $r = 6$ , find  $p$  when  $r = 12$ .
8. If  $w$  varies directly as  $2x - 1$ , and  $w = 9$  when  $x = 2$ , find  $x$  when  $w = 15$ .
9. The water pressure,  $y$ , on a diver is directly proportional to the diver's depth,  $x$ , in meters, beneath the surface. If the pressure is 29.4 kilopascals when a diver is 3 meters beneath the surface, find the depth if the pressure is 147 kilopascals.
10. If the sales tax on a \$60 purchase is \$3.90, what would it be on a \$280 purchase?
11. A real estate agent made a commission of \$5400 on a house that sold at \$120,000. At this rate, what commission will the agent make on a house that sells for \$145,000?
12. On a certain map, a field 280 feet long is represented by an 8 inch by 5 inch rectangle. How wide is the field?