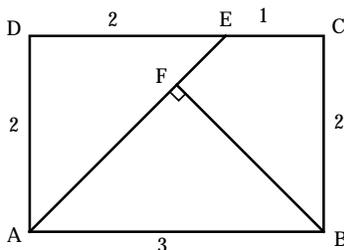






5. The 9-digit number  $N = 1234d4321$  is divisible by 9. What is the value of the digit  $d$ ?
- (a) 7 (b) 6  
(c) 5 (d) 4  
(e) None of these

6. In the figure below  $ABCD$  is a rectangle with indicated side lengths. Also,  $\overline{BF} \perp \overline{AE}$ . Find the length of  $BF$ .



- (a)  $BF = 2\sqrt{3}$  (b)  $BF = \sqrt{5}$   
(c)  $BF = \frac{5}{2}$  (d)  $BF = \frac{3\sqrt{2}}{2}$   
(e) None of these
7. Find the value of  $a$  so that the two lines  $2013x + 2012y = 1$  and  $2014x + ay = 1$  are mutually perpendicular.
- (a)  $-\frac{2027091}{1009}$  (b)  $-\frac{2027091}{1008}$   
(c)  $-\frac{2027091}{1007}$  (d)  $-\frac{2027091}{1006}$   
(e) None of these

8. A standard calendar year has 365 days. A leap year has 366 days. A year is a leap year if it is divisible by 4, *except* if it is a new century year not divisible by 400. So 1900 was not a leap year (1900 *is not* divisible by 400), but 2000 was a leap year (2000 *is* divisible by 400). December 25, 2013 was a Wednesday. What day of the week will December 25 be in the year 3013?
- (a) Friday (b) Saturday  
(c) Sunday (d) Monday  
(e) None of these
9. Lenny asks Rodney to choose a number. Lenny then doubles Rodney's number and subtracts 6. Lenny repeats this procedure 2 more times (for a total of 3 times) using the result of the previous calculation as the starting number with each repeat. Lenny then notes that the end result is the number 2014. What was Rodney's starting number?
- (a) 253 (b) 254  
(c) 255 (d) 256  
(e) None of these
10. Lenny has 45 coins (nickels, dimes and quarters) in his purse that add up to \$4. The Magic Fairy instantly switches the respective numbers of nickels and quarters, doubling the amount of money in Lenny's purse, giving him \$8. How many quarters did Lenny originally have?
- (a) 8 (b) 7  
(c) 6 (d) 5  
(e) None of these