Learning Enhancement Team

University of East Anglia

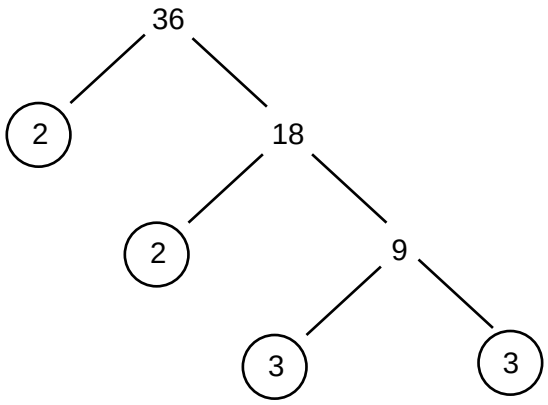
STUDENT SUPPORT SERVICE

Model Answers: Prime Factors

Prime Factors study guide

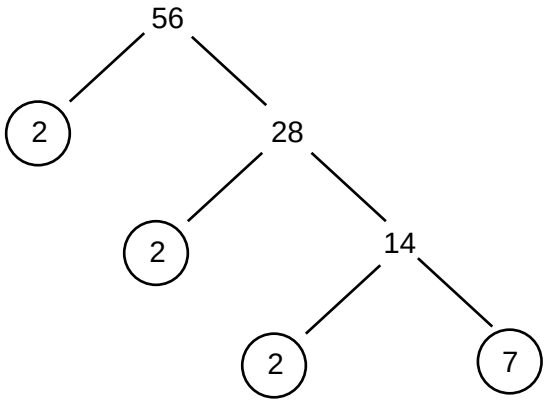
a. 25: as 25 is a multiple of 5, use your 5 times table to give $25 = 5 \times 5$, as 5 is prime this gives the prime factor form.

b. 36: Use the starting point that 36 is even and therefore divides by 2...



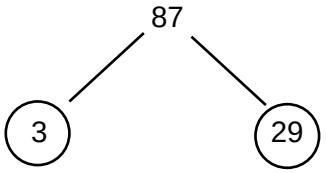
So $36 = 2 \times 2 \times 3 \times 3$, also $36 = 6 \times 6 = 2 \times 3 \times 2 \times 3$ which is identical.

c. 56: Use the starting point that 56 is even and therefore divides by 2...



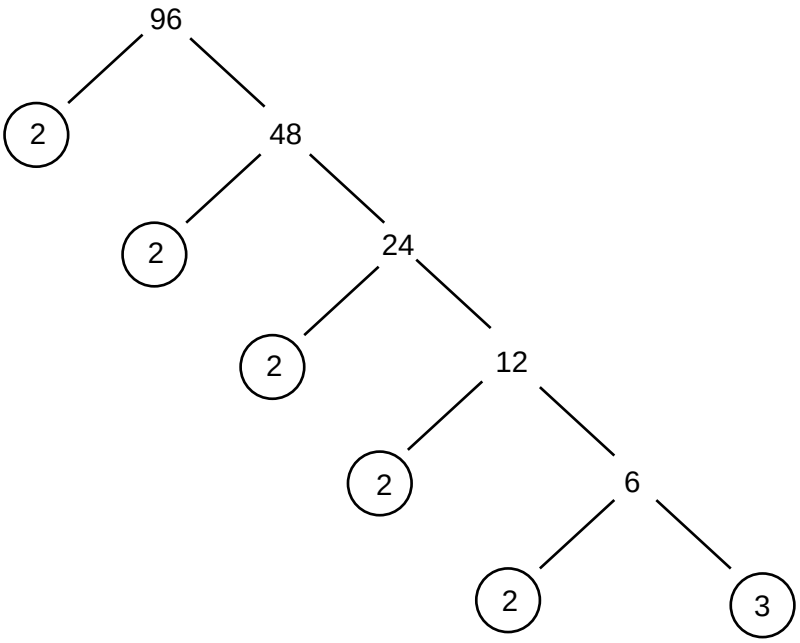
So $56 = 2 \times 2 \times 2 \times 7$, also $56 = 7 \times 8 = 7 \times 2 \times 2 \times 2$ which is identical.

d. 87: Use the starting point that 87 is divisible by 3 as $8+7=15$ ...



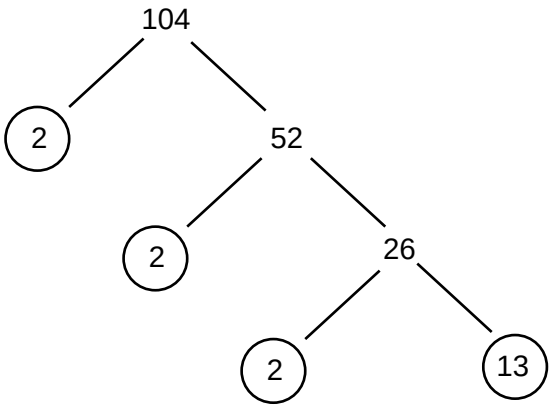
So $87=3\times29$.

e. 96: Use the starting point that 96 is even and therefore divisible by 2...



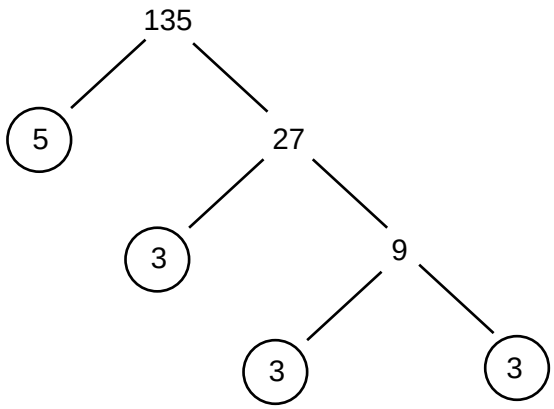
So $96=2\times2\times2\times2\times2\times3$.

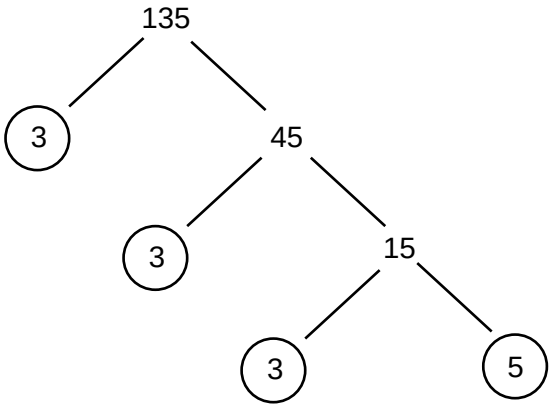
f. 104: Use the starting point that 104 is even and therefore divisible by 2...



So $104=2\times2\times2\times13$.

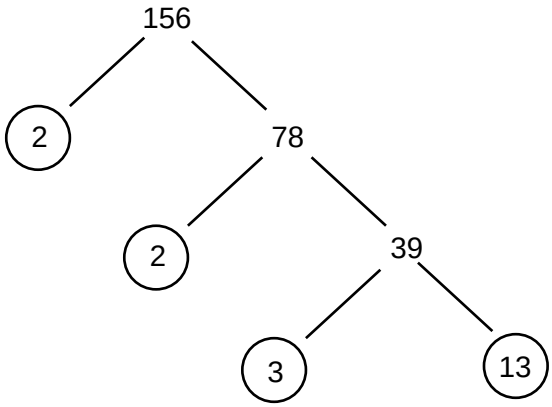
g. 135: You could start either by noting that 135 is in the 5 times table as it ends in 5 or that it is divisible by 3 as $1+3+5=9$...





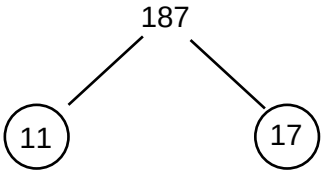
Either way $135=3\times3\times3\times5$.

h. 156: Use the starting point that 156 is even and therefore divisible by 2...



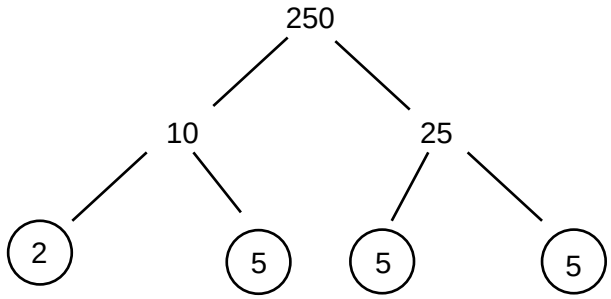
So $156=2\times2\times3\times13$.

i. 187: 187 is divisible by 11 as $1-8+7=0$...



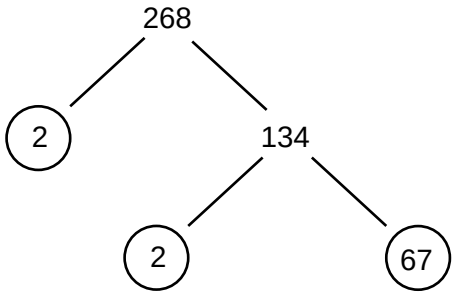
So $187=11\times17$.

j. 250: You could start dividing by 2 but it is probably better to note that $250 = 10 \times 25$ ...



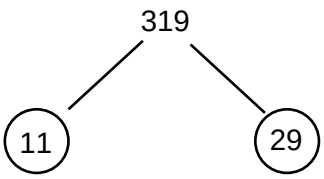
So $250 = 2 \times 5 \times 5 \times 5$.

k. 268: Use the starting point that 268 is even and therefore divisible by 2...



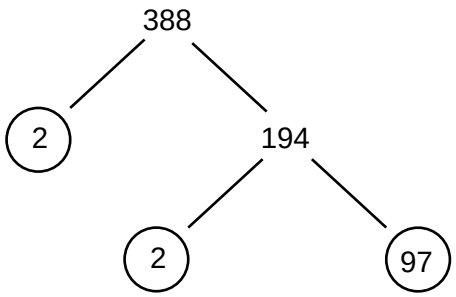
So $268 = 2 \times 2 \times 67$.

l. 319: 319 is divisible by 11 as $3 - 1 + 9 = 11$...



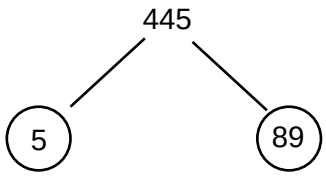
So $319 = 11 \times 29$.

m. 388: Use the starting point that 388 is even and therefore divisible by 2...



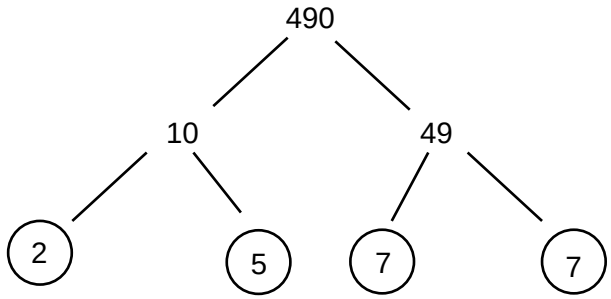
So $388 = 2 \times 2 \times 97$.

n. 445: 445 is divisible by 5 as it ends in 5...



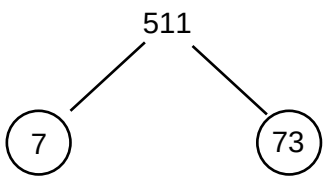
So $445 = 5 \times 89$.

o. 490: You could start dividing by 2 but it is probably better to note that $490 = 10 \times 49$...



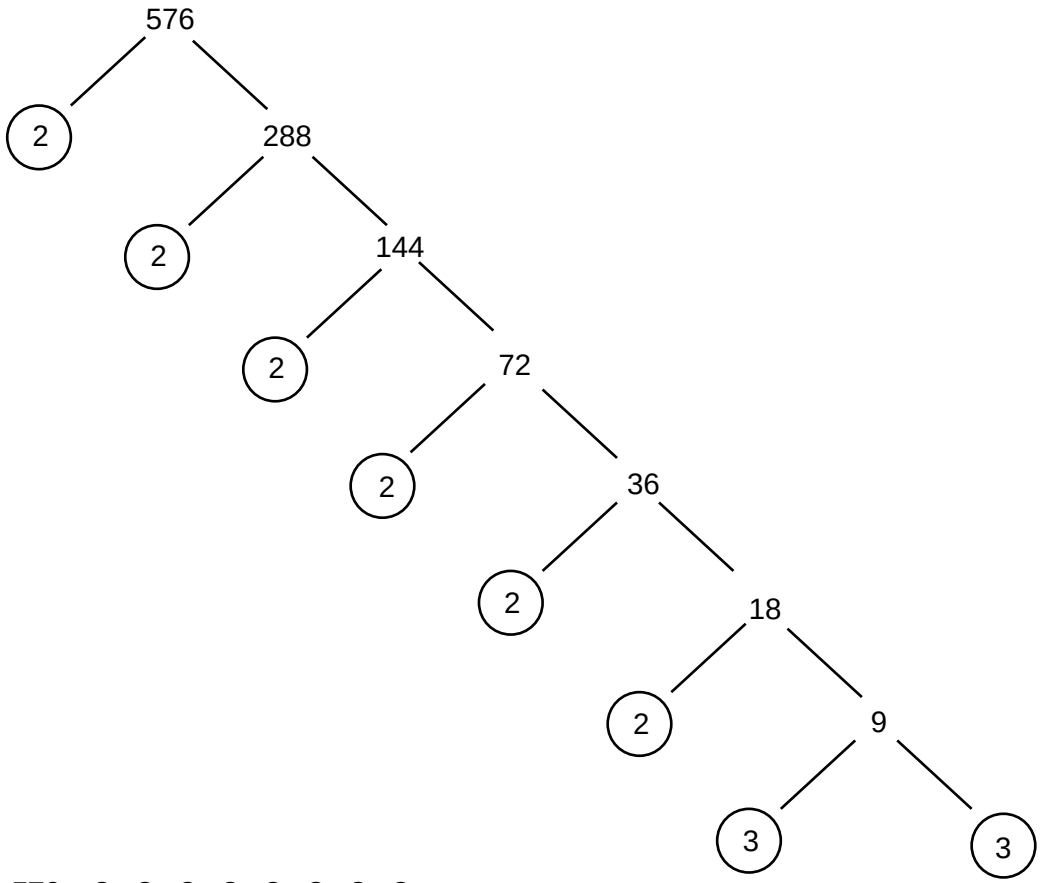
So $490 = 2 \times 5 \times 7 \times 7$.

p. 511: 511 is divisible by 7...



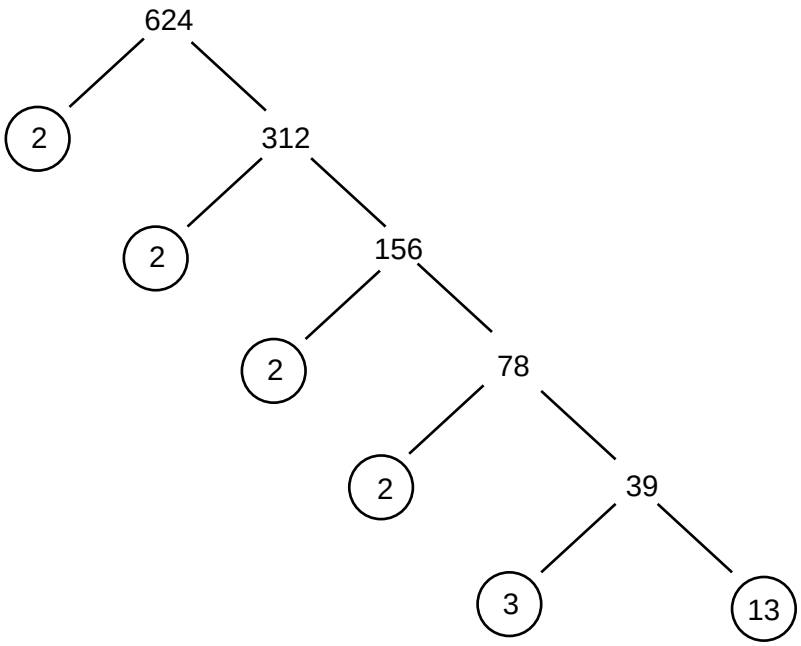
So $511 = 7 \times 73$.

q. 576: Use 576 is even and so divisible by 2 as a starting point...



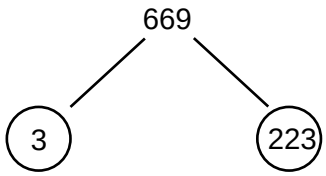
So $576 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3$.

r. 624: Use 624 is even and so divisible by 2 as a starting point...



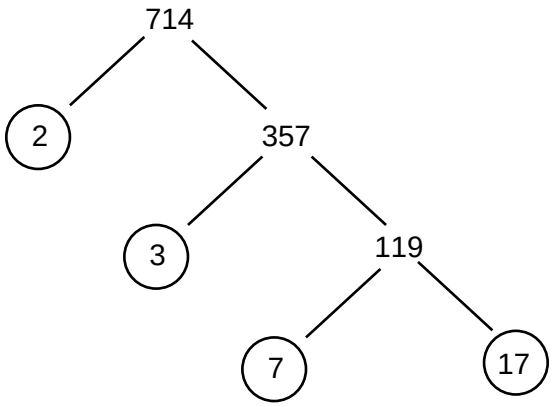
So $624 = 2 \times 2 \times 2 \times 2 \times 3 \times 13$.

s. 669: 669 is divisible by 3 as $6+6+9=21$ which is divisible by 3...



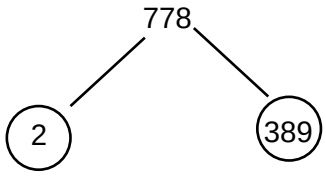
So $669=3\times223$.

t. 714: Use 714 is even and so divisible by 2 as a starting point...



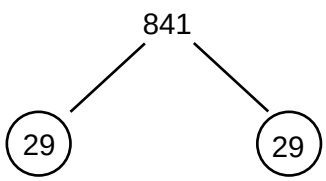
So $714=2\times3\times7\times17$.

u. 778: Use 778 is even and so divisible by 2 as a starting point...



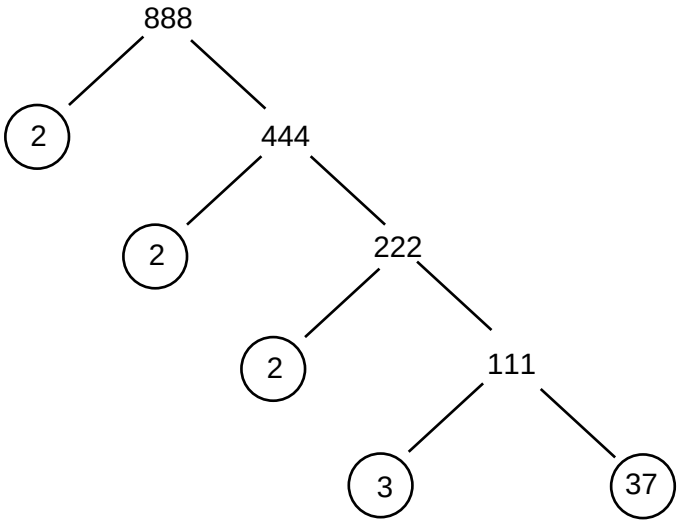
So $778=2\times389$.

v. 841: This is a bit more difficult, but $841=29^2$...



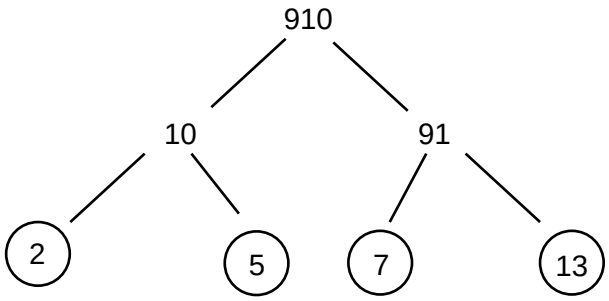
So $778=2\times389$.

w. 888: Use 888 is even and so divisible by 2 as a starting point...



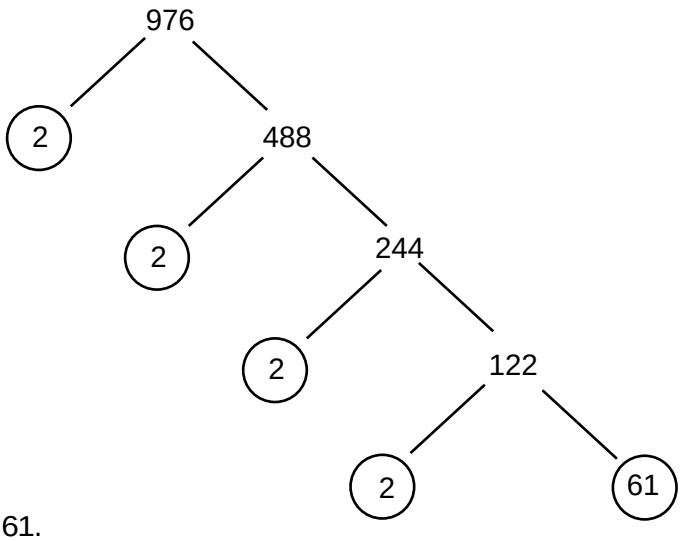
So $888 = 2 \times 2 \times 2 \times 3 \times 37$.

x. 910: You could start dividing by 2 but it is probably better to note that $910 = 10 \times 91$...



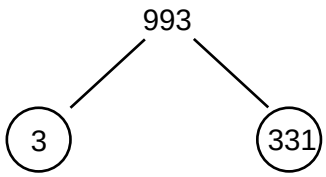
So $910 = 2 \times 5 \times 7 \times 13$.

y. 976: Use 976 is even and so divisible by 2 as a starting point...



So $888 = 2 \times 2 \times 2 \times 2 \times 61$.

z. 993: 993 is divisible by 3 as $9+9+3=21$ which is divisible by 3...



So $933=3\times331$.