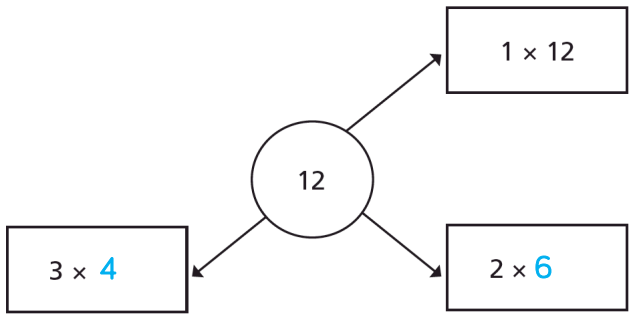
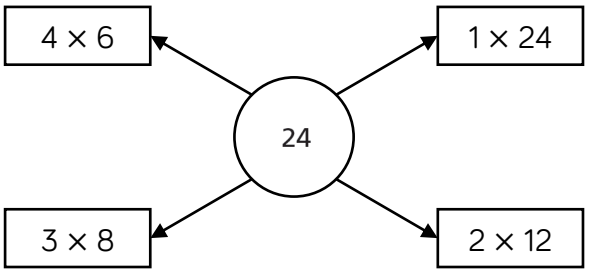
Y5 – Autumn – Block 4 – Step 1 – Multiples Answers

<table>
<tr><th>Question</th><th>Answer</th></tr>
<tr><td>1</td><td>a) 5
b) 10
c) 15
d) 20
The numbers are all multiples of 5</td></tr>
<tr><td>2</td><td>
<table>
<tr><td>0</td><td>6</td><td>12</td><td>18</td><td>24</td><td>30</td><td>36</td><td>42</td><td>48</td><td>54</td><td>60</td></tr>
</table>
</td></tr>
<tr><td>3</td><td>a) 2, 4, 6, 8, 10, 12, 14, 16, 18, 20
b) 4, 8, 12, 16, 20
c) All the multiples of 4 are also multiples of 2
d) No.
All multiples of 4 are even numbers and 47 is an odd number.</td></tr>
<tr><td>4</td><td>a) 23 6 13 18 21 32
b)
<table>
<tr><td>Multiple of 3</td><td>75</td><td>126</td><td>432</td><td>9,735</td></tr>
<tr><td>Sum of the digits</td><td>12</td><td>9</td><td>9</td><td>24</td></tr>
</table>
They are all multiples of 3</td></tr>
<tr><td>5</td><td>false
Multiples of 5 end with either 5 or 0</td></tr>
<tr><td>6</td><td>8 56 6 16
✓
It is not a multiple of 8</td></tr>
<tr><td>7</td><td>a), b)
<table>
<tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr>
<tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr>
<tr><td>31</td><td>32</td><td>33</td><td>34</td><td>35</td><td>36</td><td>37</td><td>38</td><td>39</td><td>40</td></tr>
</table>
They are multiples of 6</td></tr>
<tr><td>8</td><td>Yes.
They could both be thinking of 30 (or any multiple of 30).</td></tr>
<tr><td>9</td><td>48</td></tr>
<tr><td>10</td><td>255, 270, 285, 300, 315, 330, 345
There are seven multiples.</td></tr>
</table>

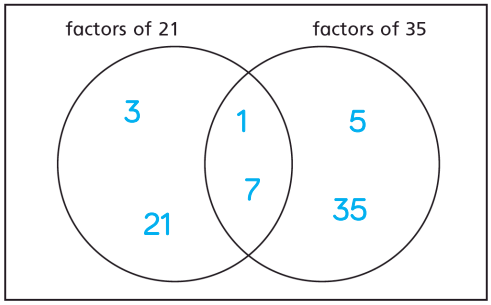
Y5 – Autumn – Block 4 – Step 2 – Factors Answers

Question	Answer
1	a) 2 and 8 are both factors of 16 b) There are 5 rows of 5 and 1 counter left over.
2	a) child's arrangement of 20 counters in 2 rows of 10 b) child's arrangement of 20 counters in 4 rows of 5 c) child's arrangement of 20 counters in 3 rows of 6 and 2 counters left over
3	a)  1, 2, 3, 4, 6, 12 b)  1, 2, 3, 4, 6, 8, 12, 24
4	a) 1, 2, 4, 8, 16, 32 b) Check that all the factors have a pair.
5	a) **5** **15** **25** **3** **30** **4** **2** **12** **60** **0** b) 45 or 90
6	a) No. 1 and 11 are factors of 11 b) 23
7	**64** **48** ✓
8	a) 20, 30 and 40 are multiples, not factors. b) Factors are all integers.
9	a) Multiples of 5 end in 0 or 5 b) The digits of multiples of 3 sum to a multiple of 3. 1 + 7 + 7 = 15, which is a multiple of 3. 1 + 7 + 8 = 16, which is not a multiple of 3. c) 180 ÷ 20 = 9. 190 is 10 more than 180 so 20 cannot be a factor.

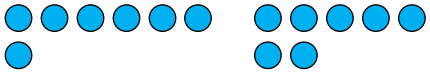
Y5 – Autumn – Block 4 – Step 2 – Factors Answers (continued)

Question	Answer
10	sometimes true If a number is a square number, then it will have an odd number of factors because one factor pair is the same number twice.

Y5 – Autumn – Block 4 – Step 3 – Common factors Answers

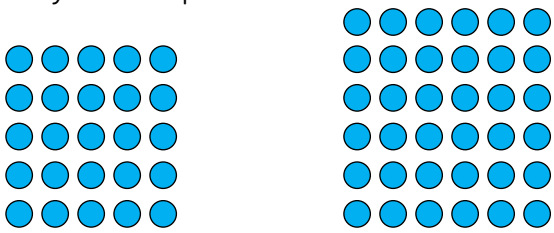
Question	Answer
1	a) 1, 2, 9, 18 b) 3, 6 c) 1, 3, 9, 27 d) 1, 3, 9 They are factors of both numbers.
2	a) The factors of 24 are 1, 2, 3, 4, 6, 8, 12, 24 The factors of 36 are 1, 2, 3, 4, 6, 9, 12, 18, 36 The common factors of 24 and 36 are 1, 2, 3, 4, 6, 12 b) The factors of 30 are 1, 2, 3, 5, 6, 10, 15, 30 The factors of 45 are 1, 3, 5, 9, 15, 45 The common factors of 24 and 36 are 1, 3, 5, 15
3	a)  b) 1, 7 c) The common factors are in the intersection of the two circles.
4	a) 1, 5 b) 1
5	2 and 6 — 3 and 8 — 15 and 12 9 and 11 — 49 and 21 — 15 and 22 The common factor is 1 At least one of the numbers is odd.
6	Yes. 36 is a factor of 72, so all the factors of 36 must also be factors of 72
7	a) 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60 b) 1, 2, 3, 4, 6, 7, 12, 14, 21, 28, 42, 84 c) 12
8	a) boxes holding 2, 3, 4 or 6 cakes b) boxes holding 2, 3, 5, 6 or 10 cakes c) boxes holding 2, 3 or 6 cakes They can both use boxes with common factors of 24 and 30
9	72 and 80

Y5 – Autumn – Block 4 – Step 4 – Prime numbers Answers

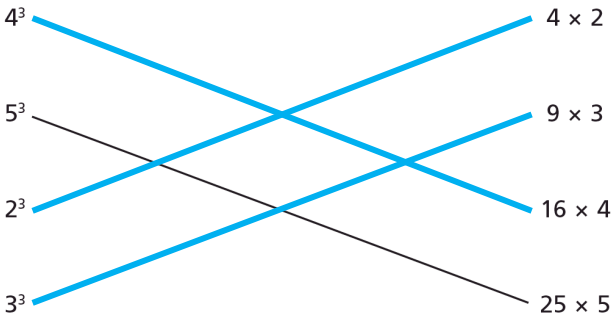
<table>
<tr><th>Question</th><th>Answer</th></tr>
<tr><td>1</td><td>a) No.
 
b) 1 and 7
c) It only has two factors, which are 1 and itself.</td></tr>
<tr><td>2</td><td>
<table>
<tr><th>Number</th><th>Factors</th><th>Is the number prime?</th></tr>
<tr><td>5</td><td>1 and 5</td><td>Yes</td></tr>
<tr><td>9</td><td>1, 3, 9</td><td>no</td></tr>
<tr><td>11</td><td>1, 11</td><td>yes</td></tr>
<tr><td>14</td><td>1, 2, 7, 14</td><td>no</td></tr>
<tr><td>15</td><td>1, 3, 5, 15</td><td>no</td></tr>
<tr><td>19</td><td>1, 19</td><td>yes</td></tr>
</table>
</td></tr>
<tr><td>3</td><td>2, 3, 5, 7, 11, 13, 17, 19</td></tr>
<tr><td>4</td><td>No.
It has more than two factors: 1, 5, 25</td></tr>
<tr><td>5</td><td>a) 17
b) 23</td></tr>
<tr><td>6</td><td>
<table>
<tr><td>51</td><td>52</td><td>53</td><td>54</td><td>55</td><td>56</td><td>57</td><td>58</td><td>59</td><td>60</td></tr>
<tr><td>61</td><td>62</td><td>63</td><td>64</td><td>65</td><td>66</td><td>67</td><td>68</td><td>69</td><td>70</td></tr>
<tr><td>71</td><td>72</td><td>73</td><td>74</td><td>75</td><td>76</td><td>77</td><td>78</td><td>79</td><td>80</td></tr>
</table>
</td></tr>
<tr><td>7</td><td>126 has 2 as a factor because it is even.
175 has 5 as a factor because it ends in 5
2,378 has 2 as a factor because it is even.
777 has 7 as a factor because each digit is 7
381 has 3 as a factor because the digits sum to a multiple of 3
9,000 has 2 as a factor because it is even.

Children may have different reasons, e.g.
777 has 3 as a factor because the digits sum to a multiple of 3
9,000 has 3/5/9/10 as a factor.</td></tr>
<tr><td>8</td><td>Alex
2 is even and prime. It is the only even prime number.</td></tr>
<tr><td>9</td><td>2, 3, 4, 5, 6 or 3, 4, 5, 6, 7</td></tr>
<tr><td>10</td><td>23</td></tr>
</table>

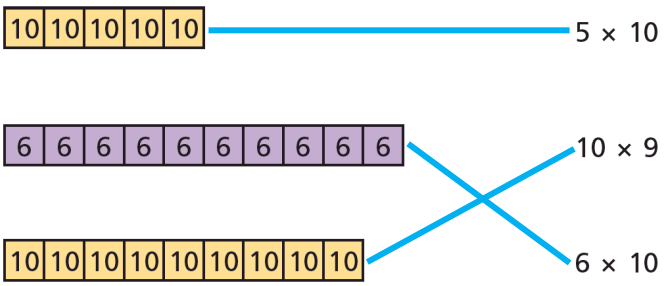
Y5 – Autumn – Block 4 – Step 5 – Prime numbers Answers

<table>
<tr><th>Question</th><th>Answer</th></tr>
<tr><td>1</td><td>a) child's arrays of counters
b) It is a square.
c) Yes, because 16 counters can be arranged in a square array.</td></tr>
<tr><td>2</td><td>a) No.
b) Yes.
c) 9
9 counters can be arranged in a square array.</td></tr>
<tr><td>3</td><td>4 10 18 25</td></tr>
<tr><td>4</td><td>Dexter has not made complete rows of counters.</td></tr>
<tr><td>5</td><td>Whitney has worked out 8 + 8 instead of 8 × 8
The answer should be 64</td></tr>
<tr><td>6</td><td>a) 1 × 1 = 1 2 × 2 = 4 3 × 3 = 9 4 × 4 = 16
b) They are all square numbers.
c) 
5 × 5 = 25 6 × 6 = 36
d) 49, 64, 81, 100</td></tr>
<tr><td>7</td><td>a) 36
b) 144
c) 81
d) 0
e) 10
f) 8</td></tr>
<tr><td>8</td><td><table><tr><th></th><th>Factor of 24</th><th>Not a factor of 24</th></tr><tr><td>Square number</td><td>4</td><td>0 49</td></tr><tr><td>Prime number</td><td>3</td><td>11</td></tr></table></td></tr>
<tr><td>9</td><td>36 or 81</td></tr>
<tr><td>10</td><td>49</td></tr>
</table>

Y5 – Autumn – Block 4 – Step 6 – Cube numbers Answers

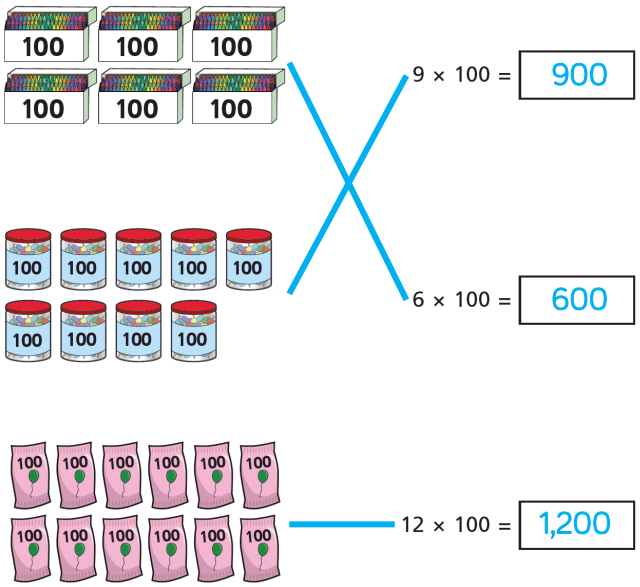
<table>
<tr><th>Question</th><th>Answer</th></tr>
<tr><td>1</td><td>a) child's 2 × 2 × 2 cube made of multilink
b) No.
There will be one cube sticking out.</td></tr>
<tr><td>2</td><td>a) 27
b) 3 × 3 × 3
c) It is a cube number because it can make a cube with integer sides.</td></tr>
<tr><td>3</td><td>a)
<table>
<tr><td>2^3</td><td>2 × 2 × 2</td><td>8</td></tr>
<tr><td>3^3</td><td>3 × 3 × 3</td><td>27</td></tr>
<tr><td>4^3</td><td>4 × 4 × 4</td><td>64</td></tr>
</table>
b) $5^3 = 5 \times 5 \times 5 = 125$</td></tr>
<tr><td>4</td><td>a) $5^3 = 125$
5 cubed = 125
5 × 5 × 5 = 125
b) $10^3 = 1{,}000$
10 cubed = 1,000
10 × 10 × 10 = 1,000</td></tr>
<tr><td>5</td><td>a) 6 × 3 ☐ 6 + 6 + 6 ☐ 6 × 6 × 6 ☑
b) Yes.
Kim has correctly calculated 6 × 6, then multiplied her answer by 6
c) 
</td></tr>
<tr><td>6</td><td>343</td></tr>
<tr><td>7</td><td>Dora has worked out 3 × 3 instead of 3 to the power 3</td></tr>
<tr><td>8</td><td>Scott is 27 years old.</td></tr>
</table>

Y4 – Autumn – Block 4 – Step 1 – Multiply by 10 Answers

Question	Answer
1	5 × 1 ten = 5 tens 5 × 10 = 50
2	a) 20 b) 40 c) 80 d) 70 e) 60 f) 30
3	
4	Tom has 120 eggs.
5	Each row has 1 ten and 3 ones. There are 10 rows. The calculation is 13 × 10 = 130
6	230
7	There are 10 teams with 7 players on each team. There are 10 red flowers and 7 yellow flowers. ✓ There are 7 ten frames with 10 counters in each. The first and last statements can be represented as 7 × 10 = 70 The middle statement can be represented as 7 + 10 = 17
8	a) 450 b) 360 c) 780 d) 10 e) 14 f) 400 g) 32 h) 67
9	Teddy walks 600 m to school.
10	76, 77, 78, 79

Question	Answer
11	a) 10 boxes of 8 chocolates 8 boxes of 10 chocolates 5 boxes of 8 chocolates and 4 boxes of 10 chocolates. b) 8

Y4 – Autumn – Block 4 – Step 2 – Multiply by 100 Answers

Question	Answer
1	3 × 1 hundred = 3 hundreds 3 × 100 = 300
2	a) 200 b) 400 c) 800 d) 500 e) 1,000 f) 2,000
3	100 + 7 **100 × 7** 7 + 100 **7 × 100**
4	
5	a) 3,200 b) 2,900 c) 7,200 d) 3,500 e) 65 f) 30
6	The perimeter of the rectangle is 1,600 cm.
7	a) > b) = c) > d) = e) =
8	36

Question	Answer
9	a) 1,700 b) Dexter c) multiple possible answers: 16 hundreds and 10 tens 15 hundreds and 20 tens 14 hundreds and 30 tens 13 hundreds and 40 tens 12 hundreds and 50 tens 11 hundreds and 60 tens 10 hundreds and 70 tens 9 hundreds and 80 tens 8 hundreds and 90 tens 7 hundreds and 100 tens 6 hundreds and 110 tens 5 hundreds and 120 tens 4 hundreds and 130 tens 3 hundreds and 140 tens 2 hundreds and 150 tens 1 hundreds and 160 tens

Y5 – Autumn – Block 4 – Step 7 – Multiply by 10, 100 and 1,000 Answers

Question	Answer
1	a) 70 b) 390 c) 2,050 The digits move one place to the left.
2	a) 90 b) 540 c) 130 d) 1,260 e) 32 f) 135 g) 200 h) 500
3	a) 9 × 100 = 900 9 × 1,000 = 9,000 b) 16 = 1,600 16 × 1,000 = 16,000 c) 245 × 100 = 24,500 245 × 1,000 = 245,000 d) To multiply by 100, move the digits two places to the left. To multiply by 1,000, move the digits three places to the left.
4	a) 45 × 100 = 4,500 52 × 100 = 5,200 70 × 100 = 7,000 b) 612 × 100 = 61,200 715 × 100 = 71,500 720 × 100 = 72,000 c) 41 × 10 = 410 41 × 100 = 4,100 41 × 1,000 = 41,000 d) 10 × 952 = 9,520 100 × 952 = 95,200 1,000 × 952 = 952,000
5	a) < b) < c) = d) >
6	Yes. 10 × 10 × 10 = 1,000

Question	Answer
7	a) 100 b) 10 c) 10 d) 1,000 e) 100 f) 10 g) 82 h) 820 i) 3,900 j) 80
8	825 papers
9	14,500 Some children may have worked out the number of books in February and then in March. Others may have worked out 10 × 10 and then multiplied this by 145
10	any number with the same digit in the tens and ones column and a digit sum of 8, e.g.: 44 233 422 611 1,133 2,033

Y4 – Autumn – Block 4 – Step 3 – Divide by 10 Answers

Question	Answer
1	4
2	a) 3 b) 6 c) 9 d) 8 e) 10 f) 12
3	Huan has 13 bags of 10 balloons.
4	a) 150 = 1 hundred + 5 tens 1 hundred = 10 tens Whitney has 15 tens altogether. 150 ÷ 10 = 15 b) 230 = 2 hundreds + 3 tens 2 hundreds = 20 tens There are 23 tens altogether. 230 ÷ 10 = 23
5	25
6	Aisha has 34 10 p coins.
7	a) 36 b) 63 c) 52 d) 410 e) 75 f) 86
8	39
9	a) 12 b) 9 c) 9 d) 40

Y4 – Autumn – Block 4 – Step 4 – Divide by 100 Answers

Question	Answer
1	4
2	a) 7 b) 8 c) 2 d) 70 e) 80 f) 20
3	a) 2,300 = 2 thousands + 3 tens 1 thousand = 10 hundreds 2 thousands = 20 hundreds Teddy has 23 hundreds altogether. 2,300 ÷ 100 = 23 b) 3,700 = 3 thousands + 7 tens 3 thousands = 30 hundreds There are 37 hundreds altogether. 3,700 ÷ 100 = 37
4	a) 7 b) 70 c) No. Jack has 170p = £1 and 70 p
5	a) 40 ÷ 10 = 4 400 ÷ 10 = 40 400 ÷ 100 = 4 4,000 ÷ 10 = 40 b) 80 ÷ 10 = 8 800 ÷ 10 = 80 800 ÷ 100 = 8 8,000 ÷ 10 = 80 Possible patterns include: • When both the number being divided and the divisor are increased by a factor of 10 the answer stays the same. • When the number being divided doubles, the answer also doubles. • When the divisor increases by a factor of 10, the answer decreases by a factor of 10
6	a) 100 × 12 = 23 b) 6,200 ÷ 100 = 62 c) 100 × 52 = 5,200 d) 3,500 ÷ 100 = 35 e) 35 = 35 hundreds ÷ 100 f) 96 = 96 hundreds ÷ 100
7	51 Children could add the number of points and then divide by 100, or divide each number of points by 100 and then add.

Question	Answer
8	$34 \times 100 = 3{,}400$ $6{,}200 \div 100 = 62$ $5{,}500 = 10 \times 10 \times 55$
9	a) 48 m b) multiple possible answers with length + width = 24 m, e.g.: length = 2,000 cm = 20 m, width = 400 cm = 4 m

Y5 – Autumn – Block 4 – Step 8 – Divide by 10, 100 and 1,000 Answers

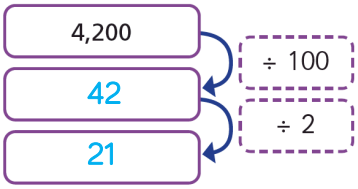
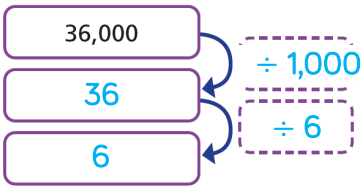
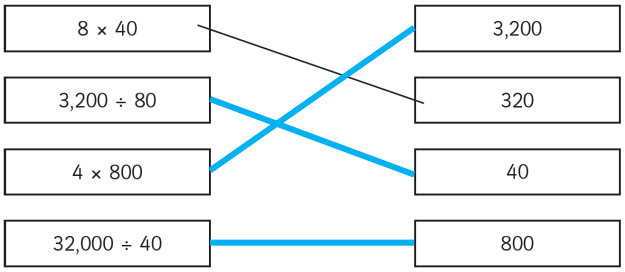
<table>
<tr><th>Question</th><th>Answer</th></tr>
<tr><td>1</td><td>a) 6
b) 49
c) 149
d) They move one place to the right.</td></tr>
<tr><td>2</td><td>a) 9
b) 75
c) 82
d) 146
e) 3,239
f) 620
g) 70
h) 9,200</td></tr>
<tr><td>3</td><td>a) 9
b) 160
c) 9
d) 768</td></tr>
<tr><td>4</td><td>To divide a number by 100, move the digits two places to the right.
To divide a number by 1,000, move the digits three places to the right.</td></tr>
<tr><td>5</td><td>a) 4,500 ÷ 10 = 450
62,000 ÷ 10 = 6,200
739,300 ÷ 10 = 73,930
b) 4,500 ÷ 100 = 45
62,000 ÷ 100 = 620
739,300 ÷ 100 = 7,393
c) 760 ÷ 10 = 76
7,600 ÷ 100 = 76
76,000 ÷ 1,000 = 76
d) 30,000 ÷ 1,000 = 30
300,000 ÷ 1,000 = 300
3,000,000 ÷ 1,000 = 3,000</td></tr>
<tr><td>6</td><td>
<table>
<tr><th>Number</th><th>Number divided by 10</th><th>Number divided by 100</th><th>Number divided by 1,000</th></tr>
<tr><td>65,000</td><td>6,500</td><td>650</td><td>65</td></tr>
<tr><td>72,000</td><td>7,200</td><td>720</td><td>72</td></tr>
<tr><td>350,000</td><td>35,000</td><td>3,500</td><td>350</td></tr>
</table>
</td></tr>
<tr><td>7</td><td>a) ></td></tr>
<tr><td></td><td>b) <</td></tr>
<tr><td></td><td>c) =</td></tr>
<tr><td></td><td>d) ></td></tr>
</table>

Question	Answer
8	a) Dividing a number by 10 and then by 10 again is the same as dividing by 100 b) Dividing a number by 1,000 is the same as dividing by 10 and then dividing by 100 For part b), children may have the alternative answer of dividing by 10, then by 10 again, then by 10 again.
9	a) 56,800 houses b) 5,680 houses c) 630,480 houses
10	any number ending with 00 where the digit in the ten thousands column is one more than the digit in the thousands column and the digit sum is 15, e.g.: 65,400 84,300 87,000 921,300

Y5 – Autumn – Block 4 – Step 9 – Multiples of 10, 100 and 1,000 Answers

Question	Answer
1	a) $7 \times 20 = 140$ $12 \times 20 = 240$ $20 \times 134 = 2{,}680$ b) Yes. $8 \times 10 = 80$ $80 \times 2 = 160$ $8 \times 20 = 160$
2	a) To multiply by 50, you multiply by 5 first and then by 10 b) To multiply by 200, you multiply by 2 first and then by 100 c) To multiply by 7,000, you multiply by 7 first and then by 1,000
3	a) 3,500 b) 48,000 c) 27,000 d) 150,000
4	a) 30 b) 3 c) 40 d) 300 e) 30,000 f) 90
5	a) 1,260 b) 1,260 c) 12,600 d) 126,000
6	a) Both methods involve multiplying by 5 and 10, but they multiply them in a different order. b) Multiply by 100 and divide by 2 c) If children have different methods, they can try each other's method to decide which they prefer.
7	a) Mo b) They have multiplied by 7 instead of dividing by 7

Y5 – Autumn – Block 4 – Step 9 – Multiples of 10, 100 and 1,000 Answers (continued)

Question	Answer
8	a)  b)  c) 3,200 ÷ 80 = 40 3,200 ÷ 800 = 4 d) 72,000 ÷ 9,000 = 8 72,000 ÷ 900 = 80 72,000 ÷ 90 = 800
9	
10	multiple possible answers, e.g.: 12,000 ÷ 30 16,000 ÷ 40 80,000 ÷ 200 800,000 ÷ 2,000 5 × 80 8 × 50 20 × 20 40 × 10