Year 6 maths: Number patterns with big numbers, decimals and two-step rules (Hard)

Maths · Patterns and algebra
Level: Hard

Student: _____ Date: _____

Instructions
- There are 10 questions. Read each one carefully.
- Write your answers on this paper. Use the space under a question to work it out.
- A grown-up can read a question aloud — that's fine.
- The answers are at the end. Check them together when you have finished.

Questions

1. Count on in 2s: 2 599 994, 2 599 996, 2 599 998, ___. What comes next?

Answer: ☐

Working:

2. A pattern starts at 8 and adds 12 each time. What is the first number above 100?

Answer: ☐

Working:

3. Each number is half the one before: 640, 320, 160, ___. What comes next?

Answer: ☐

Working:

4. The pattern 0.05, 0.10, 0.15, ... follows 'add 0.05'. What is the 10th number?

Answer: ☐

Working:

5. Step n of a tile pattern has 3 × n + 2 tiles. How many tiles are in Step 8?

Circle one answer.

○ **A** 24 ○ **B** 40 ○ **C** 29 ○ **D** 26

6. Rule: multiply by 2, then subtract 3. The pattern is 5, 7, 11, ___. What comes next? Answer: ☐

Working:

7. Count on in 50s: 4 999 750, 4 999 800, 4 999 850, 4 999 900, 4 999 950, ___. What comes next? Answer: ☐

Working:

8. Which pattern follows 'add 0.25'?

Circle one answer.

○ **A** 12.25, 12.5, 12.75, 12.100 ○ **B** 12.25, 12.5, 13, 13.5

○ **C** 12.25, 12.5, 12.75, 13 ○ **D** 12.25, 12.5, 12.75, 13.5

9. A pattern begins 7, 18, 29, 40. What is the 8th number?

Circle one answer.

○ **A** 95 ○ **B** 88 ○ **C** 77 ○ **D** 84

10. Count on: 94 000 000, 96 500 000, 99 000 000, … What number comes next? Answer: ☐

Working:

Answer key

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1. 2 600 000

2 599 998 + 2 = 2 600 000.

2. 104

8, 20, 32, 44, 56, 68, 80, 92, 104.

3. 80

160 ÷ 2 = 80.

4. 0.5

10 × 0.05 = 0.50.

5. D — 26

3 × 8 = 24, then 24 + 2 = 26.

6. 19

11 × 2 = 22, then 22 − 3 = 19.

7. 5 000 000

4 999 950 + 50 = 5 000 000.

8. C — 12.25, 12.5, 12.75, 13

Each number is 0.25 more than the last.

9. D — 84

The rule is add 11. The 8th number is 7 + 7 × 11 = 84.

10. 101 500 000

The step is 2 500 000. 99 000 000 + 2 500 000 = 101 500 000.