Year 4 maths: Chance as numbers (Hard)

Maths · Data
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. Lena adds 3 more moon stickers to the box. A moon now has how many chances in 15?

Answer: ☐ chances in 15

Sticker	Number
Star	2
Heart	4
Moon	1
Smiley	3
Rainbow	2

Working:

2. How many green counters must be added so green is as likely as red?

Answer: ☐ counters



Colour key: G = green, R = red

Working:

3. Which two have the same chance?

Circle one answer.

1	2	3	4	5	6	7	8	9	10	11	12

○ **A** A multiple of 5, or a 7

○ **B** An even number, or a number less than 6

○ **C** A number less than 4, or a number bigger than 9

○ **D** A number less than 7, or a number bigger than 7

○ **E** A number bigger than 10, or a 1

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4. Which change gives red and blue the same chance?

Circle one answer.



Colour key: R = red, B = blue

○ **A** Take away 3 red counters

○ **B** Add 3 red counters

○ **C** Take away 3 blue counters

○ **D** Take away 6 red counters

○ **E** Add 6 blue counters

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5. Which is the most likely?

Circle one answer.

3	14	8	21	6	17	10	12

○ **A** A number bigger than 10

○ **B** An odd number

○ **C** An even number

○ **D** An even number bigger than 10

○ **E** A number smaller than 8

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6. Lars says: "Picking a number bigger than 20 is just as likely as picking an even number." Is he right?

Circle one answer.

22	15	31	8	27	12	19	40

○ **A** No: bigger than 20 is 5 chances in 8

○ **B** Yes: both are 4 chances in 8

○ **C** No: bigger than 20 is 3 chances in 8

○ **D** No: even is 5 chances in 8

○ **E** No: even is 4 chances in 4

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7. Ned puts these six number cards in a dark bag and pulls one out without looking. What is the chance it has an odd number?

Circle one answer.

11	14	17	20	23	26

○ **A** 1 chance in 2 ○ **B** 3 chances in 3 ○ **C** 1 chance in 6

○ **D** 1 chance in 3 ○ **E** 4 chances in 6

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8. Spinner X has 4 equal parts: 2, 5, 8, 11. Spinner Y has 8 equal parts: 1, 4, 6, 7, 9, 10, 13, 14. Which is true about landing on an even number?

Circle one answer.

○ **A** Both spinners give the same chance

○ **B** X is more likely

○ **C** Y gives 4 chances in 4

○ **D** Y is more likely, because it has more even numbers

○ **E** X gives 1 chance in 4

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9. A bag has 10 counters: 5 green, 2 orange and 3 blue. Lucy picks one without looking. Which of these statements is/are correct? 1: Picking green is more likely than picking a counter that is orange or blue. 2: Green is more than twice as likely as orange. 3: If one green counter is taken out first, there are 4 chances in 10 of picking green.

Circle one answer.

○ **A** statement 1 only

○ **B** statement 2 only

○ **C** statements 1 and 2 only

○ **D** statements 2 and 3 only

○ **E** statements 1, 2 and 3

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10. A bag has 5 red, 4 blue and 3 green counters. Which change makes red, blue and green equally likely?

Circle one answer.

○ **A** Take out 1 green counter and put in 1 red counter

○ **B** Take out 2 red counters

○ **C** Put in 1 red and 1 blue counter

○ **D** Take out 1 red counter and put in 1 green counter

○ **E** Put in 1 green counter

Answer key

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1. 4 chances in 15

Moons: 1 + 3 = 4. Stickers: 12 + 3 = 15. So 4 chances in 15.

2. 4 counters

Red 6, green 2. 6 − 2 = 4 more green.

3. C — A number less than 4, or a number bigger than 9

Less than 4: 1, 2, 3 (3 cards). Bigger than 9: 10, 11, 12 (3 cards). Same chance. The others are not the same: bigger than 10 (2) or a 1 (1); even (6) or less than 6 (5); less than 7 (6) or bigger than 7 (5); a multiple of 5 (2) or a 7 (1).

4. A — Take away 3 red counters

Red 6, blue 3. Taking away 3 red leaves 3 and 3.

5. C — An even number

Even: 14, 8, 6, 10, 12 (5). Odd: 3, 21, 17 (3). Bigger than 10: 14, 21, 17, 12 (4). Smaller than 8: 3, 6 (2). Even and bigger than 10: 14, 12 (2).

6. B — Yes: both are 4 chances in 8

Bigger than 20: 22, 31, 27, 40 (4). Even: 22, 8, 12, 40 (4). Both 4 chances in 8, so Lars is right.

7. A — 1 chance in 2

Odd: 11, 17 and 23. 3 of the 6 cards is half: 1 chance in 2.

8. A — Both spinners give the same chance

X: 2 and 8 are even, 2 chances in 4, which is half. Y: 4, 6, 10 and 14 are even, 4 chances in 8, also half. The chances are the same.

9. B — statement 2 only

1: orange or blue is 2 + 3 = 5, the same as 5 green, not fewer: false. 2: twice orange is 4, and 5 is more than 4: true. 3: with one green out there are 4 green but only 9 counters, so it is 4 chances in 9: false. So statement 2 only.

10. D — Take out 1 red counter and put in 1 green counter

Red 5, blue 4, green 3. Taking a red out and putting a green in gives 4, 4 and 4: equally likely.