Level 20 Card 1   All times tables should be known x2 – x12
Square numbers

When you multiply a whole number times itself, you get a square number. So, 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, and so on, are all square numbers, (e.g. 1x1 = 1; 2x2 = 4)

1. **Make a list of square numbers up to 144 by completing this list:**

1 x 1 = **1**
2 x 2 = **4**   keep going up to …
12 x 12 = **144**

We can show a square number like this:
2^2 is 2 "squared" or 2 x 2.

2. **Write these numbers as "squared".**

2 x 2 = 2^2
3 x 3 = 3^2 keep going up to 12^2

Index numbers
An index number is when you multiply a number by itself as many times as shown by the smaller number, e.g.
3^3 = 3 x 3 x 3 = 27

3. Set out these index numbers the same way.
2^5 =
4^3 =
5^3 =

4. Show these numbers as square numbers or index numbers:
25 = □ x □   8 = □ x □ x □ = □   27 = □ x □ x □ = □

Level 20 card 2
Place value

1. Write in words: 729,264.
2. Write in figures: nine hundred and fifty-four thousand and three.
3. Round these numbers to the nearest 10:
    a) 32,579   b) 654,922 c) 89,999 d) 26,784
4. Round these numbers to the nearest 100:
    a) 329,644 b) 23,879 c) 4,098 d) 379,009
5. Round these numbers to the nearest 1000:
    a) 267,908 b) 367,864 c) 643,863 d) 257,074
6. Round these numbers to the nearest $\frac{1}{10}$
    a) 265.12 b) 896.28 c) 290,755.08 d) 362,075.91

Prime factors
A Prime Factor is a factor that is a prime number. In other words: any of the prime numbers that can be multiplied to give the original number. Example: The prime factors of 15 are 3 and 5 (because 3×5=15, and 3 and 5 are prime numbers).

Make a list of prime numbers between 2 and 17. Write the prime factors of each of these. Remember that you can only use prime numbers for the factors:

a) □ x □ = 4   b) □ x □ =14

c) □ x □ = 33   d) □ x □ = 51

e) □ x □ = 35   f) □ x □ = 26

g) □ x □ = 57   h) □ x □ = 55

Level 20 Card 3

Ascending and descending order of numbers

1. **Write this set of numbers in ascending order:**
42,537   47,235   72,543   37,452   54,723

2. **Write this set of numbers in descending order:**
42,537   47,235   72,543   37,452   54,723

3. **Rounding Numbers**
Copy the number in the line which is nearest in value to the number in bold print:
a) **5,736**   700   5,000   6,000   7,000

b) **24,560**   26,000   23,000   25,000   24,000

c) **384,505**   38,000   380,000   400,000   84,000

d) **153,489**   200,000   100,000   150,000   15,000

4. Addition in your head

a) 93,483 + 10 =

b) 763,201 + 100 =

c) 67,928 + 1000 =

d) 24,875 + 10,000 =

Level 20 Card 4

1. Write each set of numbers in ascending order.

a) 30,378   73,830   80,337   80,733   33,708

b) 510,871   108,752   705,184   817,053   758,102

2) Write each set of numbers in descending order.

a) 683,216   642,136   651,336   673,126   653,621

b) 496,878   485,879   486,798   485,978   487,689

2. Decimals

23.3 = 273 tenths. 2.73 = 273 hundredths. .273 = 273 thousandths.

a) 45.2 = □ tenths   b) 6.85 = □ hundredths

c) .753 = □ thousandths   d) 1.00 = □ hundredths

3. Inverse operations

Addition and subtraction are opposites. When you adjust one element, you just adjust the other to keep the answer the same. In your head:

   a) 8 + 9 = 17   b) 16 – 9 = 7
12 + □ = 17   18 - □ = 7
□ + 3 = 17   □ – 13 = 7
Multiplication and division are opposites:
c)12 x 5 = □   d) □ ÷ □ = □

Level 20 Card 5
Equivalent Fractions

Fill in the missing numbers.

$\frac{1}{2}$	$\frac{2}{4}$	$\frac{4}{8}$	$\frac{1}{3}$	$\frac{2}{6}$	$\frac{4}{12}$

$\frac{1}{2} = \frac{\square}{4}$ $\frac{1}{3} = \frac{\square}{6}$ $\frac{2}{6} = \frac{\square}{12}$

$\frac{1}{2} = \frac{\square}{8}$ $\frac{1}{3} = \frac{\square}{12}$ $\frac{2}{6} = \frac{\square}{3}$

$\frac{2}{4} = \frac{\square}{8}$ $\frac{4}{8} = \frac{\square}{2}$ $\frac{4}{12} = \frac{\square}{3}$

$\frac{2}{4} = \frac{\square}{2}$ $\frac{4}{8} = \frac{\square}{4}$ $\frac{4}{12} = \frac{\square}{6}$

Level 20 Card 6
Equivalent fractions: changing the denominator (bottom)

These fractions are really the same:
$$\frac{1}{2} = \frac{2}{4}$$

We multiply the bottom number (2) by 2 and we get 4. Now we must multiply the top number (1) by 2 to get 2

Try these. Remember, whatever you multiply the bottom number by, you must do the same for the top.

$\frac{1}{3} = \frac{}{6}$ $\frac{3}{5} = \frac{}{35}$ $\frac{3}{8} = \frac{}{24}$

$\frac{1}{6} = \frac{}{36}$ $\frac{1}{4} = \frac{}{36}$

$\frac{6}{8} = \frac{}{56}$

$\frac{}{3} = \frac{10}{15}$ $\frac{1}{8} = \frac{}{56}$

Level 20 Card 7
Equivalent Fractions: changing the denominator (bottom)

$$\frac{3}{4} = \frac{}{8}$$

$$\frac{4}{6} = \frac{}{3}$$

$$\frac{1}{2} = \frac{}{10}$$

$$\frac{6}{12} = \frac{}{6}$$

$$\frac{1}{3} = \frac{}{6}$$

$$\frac{1}{6} = \frac{}{12}$$

$$\frac{5}{10} = \frac{}{6}$$

$$\frac{2}{3} = \frac{}{9}$$

$$\frac{2}{4} = \frac{}{6}$$

$$\frac{1}{4} = \frac{}{12}$$

$$\frac{6}{9} = \frac{}{3}$$

$$\frac{2}{5} = \frac{}{10}$$

$$\frac{6}{8} = \frac{}{12}$$

$$\frac{5}{7} = \frac{}{14}$$

$$\frac{14}{16} = \frac{}{8}$$

Level 20 Card 7
Equivalent fractions: changing the numerator (top)

Step 1: Find out what the numerator is multiplied by.
Step 2: Multiply the denominator by the same.

$$\frac{11}{2} = \frac{33}{\Box}$$

$$\frac{6}{\Box} = \frac{24}{36}$$

$$\frac{1}{\Box} = \frac{5}{50}$$

$$\frac{4}{7} = \frac{16}{\Box}$$

$$\frac{39}{12} = \frac{13}{\Box}$$

$$\frac{4}{\Box} = \frac{8}{18}$$

$$\frac{5}{\Box} = \frac{20}{12}$$

Level 20 card 9
Equations

1. **Use BOMDAS** (by, of, multiply, divide, add subtract)

   a) $\frac{5}{8}$ x 40 + 56 ÷ 7 −($\frac{2}{3}$ x 9 − 4) = □

   b) $\frac{2}{3}$ of 33 − ($\frac{5}{6}$ of 12) = □

   c) $12 - 9 + 11 \; x \; 3 \; x \; 12 =$ □

   d) 7 − 1 x 14 + 7 − 3 = □

   e) 6 + 72 ÷ 9 = □

   f) 7^2 + ($\frac{1}{2}$ of 32) − 27 = □

   g) 5^3 − ($\frac{2}{3}$ of 21) + 14 = □

2. **Find the missing numbers**

   □ - 110 = 2534 + 135

   1334 + 259 = □ - 172

   5129 - □ = 4825 + 146

   5263 + 184 = 5692 - □

   9633 - 326 = □ + 342

   □ + 295 = 8127 - 221

3. **Make as many equations as you can** from the numbers 5, 3 and 2. Example: (5+3) ÷ 2 = 4

Level 20 Card 10
Solving simple real-life problems using fractions

1. Ray bought a loaf of bread and ate $\frac{1}{4}$ of it while his friend ate $\frac{1}{3}$. What fraction of the bread did they eat altogether?

2. For breakfast one morning Mum made 10 rotis. Ram ate $2\frac{1}{2}$, Bimla ate $1\frac{1}{3}$, Priya ate $1\frac{1}{4}$.
   a) How much roti did the children eat?
   b) How much roti was left?

3. Jone dug a rectangular garden which was $\frac{2}{3}$m long and $\frac{1}{3}$m wide. What was the length of the garden in cm?

4. Karan bought a material which was $3\frac{1}{2}$ m long. He used $2\frac{1}{2}$ m for his shirt. How much material was left?

5. From a half watermelon Lee ate $\frac{2}{16}$ and Suzie ate $\frac{1}{4}$.
   a) How much watermelon did they eat altogether?
   b) How much was left?

6. A whole pizza was equally divided into 16 pieces. If Jane ate one quarter of the pizza:
   a) how many pieces did she eat?
   b) how much was left? (answer in fraction and pieces)

7. Vili ate three pieces of pie. If each piece is $\frac{1}{8}$ how much pie did he eat?

8. A tin of paint was $\frac{2}{3}$ litres full. Bill used $\frac{1}{2}$ of the paint to paint his table. How much was left?

Level 20 Card 11
Addition and subtraction of fractions

Set 1

1) $\frac{1}{10} + \frac{7}{10} =$

2) $\frac{1}{5} + \frac{1}{5} =$

3) $\frac{2}{9} + \frac{2}{9} =$

4) $\frac{1}{12} + \frac{2}{12} =$

5) $\frac{2}{9} + \frac{3}{9} =$

6) $\frac{6}{7} - \frac{2}{7} =$

7) $\frac{8}{11} - \frac{6}{11} =$

8) $\frac{2}{4} - \frac{1}{4} =$

9) $\frac{10}{12} - \frac{8}{12} =$

10) $\frac{2}{6} - \frac{1}{6} =$

Set 2

1) $\frac{1}{2} + \frac{1}{4} =$

2) $\frac{2}{3} + \frac{1}{6} =$

3) $\frac{3}{10} + \frac{2}{5} =$

4) $\frac{5}{7} + \frac{1}{14} =$

5) $\frac{3}{18} + \frac{4}{9} =$

6) $\frac{5}{6} - \frac{1}{3} =$

7) $\frac{9}{10} - \frac{1}{2} =$

8) $\frac{9}{14} - \frac{1}{7} =$

9) $\frac{9}{20} - \frac{1}{4} =$

10) $\frac{7}{8} - \frac{3}{4} =$

Level 20 Card 12
Addition of fractions

1. $\frac{1}{2} + \frac{2}{3} =$

2. $\frac{1}{7} + \frac{1}{5} =$

3. $\frac{3}{6} + \frac{1}{2} =$

4. $\frac{4}{5} + \frac{1}{4} =$

5. $\frac{7}{8} + \frac{1}{4} =$

6. $\frac{2}{3} + \frac{1}{3} =$

7. $\frac{2}{6} + \frac{3}{6} =$

8. $\frac{1}{5} + \frac{4}{5} =$

9. $\frac{2}{4} + \frac{1}{3} =$

10. $\frac{1}{4} + \frac{4}{8} =$

11. $\frac{2}{5} + \frac{1}{5} =$

12. $\frac{2}{3} + \frac{1}{5} =$

13. $\frac{2}{7} + \frac{5}{6} =$

14. $\frac{4}{6} + \frac{4}{8} =$

15. $\frac{2}{3} + \frac{1}{8} =$

16. $\frac{2}{3} + \frac{3}{6} =$

17. $\frac{3}{4} + \frac{1}{3} =$

18. $\frac{1}{3} + \frac{3}{5} =$

Level 20 Card 13
Subtraction of fractions

1) $\dfrac{5}{8} - \dfrac{7}{16} =$

2) $\dfrac{1}{2} - \dfrac{1}{4} =$

3) $\dfrac{1}{2} - \dfrac{3}{8} =$

4) $\dfrac{11}{16} - \dfrac{1}{2} =$

5) $\dfrac{3}{4} - \dfrac{9}{16} =$

6) $\dfrac{3}{4} - \dfrac{3}{8} =$

7) $\dfrac{1}{4} - \dfrac{1}{8} =$

8) $\dfrac{7}{8} - \dfrac{7}{16} =$

9) $\dfrac{5}{8} - \dfrac{1}{2} =$

10) $\dfrac{15}{16} - \dfrac{3}{4} =$

Level 20 card 14   **Test**   *All times tables should be known.*

1. Write in words: 231, 567

2. $8433 - 184 = \square + 1842$

3. $2^2 = 2 \times 2 = 4$. What is 3^2 ?

4. Round these numbers to the nearest 1000:
   a) 267,908   b) 367,864

5. a) $\dfrac{2}{3} = \dfrac{}{12}$ b) $\dfrac{3}{5} = \dfrac{}{15}$

6. a) $\dfrac{7}{8} = \dfrac{14}{}$ b) $\dfrac{3}{9} = \dfrac{12}{}$

7. a) $\dfrac{1}{3}$ of $30 - (\dfrac{3}{4}$ of $12) = \square$ b) $12 - 9 + 11 \times 3 \times 12 = \square$

8. a) $\dfrac{3}{10} + \dfrac{4}{5} = \square$ b) $\dfrac{1}{6} + \dfrac{2}{3} = \square$

9. a) $\dfrac{3}{4} - \dfrac{1}{2} = \square$ b) $\dfrac{5}{8} - \dfrac{1}{4} = \square$

10. Convert these improper fractions to mixed numbers:
    a) $\dfrac{23}{5}$ b) $\dfrac{42}{8}$

11. At your birthday party you had 6 pizzas. Each pizza was divided into 8 pieces. 41 pieces were eaten. What fraction of a pizza was left?

12. Jasmine has 50 marbles in a bag. 20% of the marbles are blue. How many are blue?