Secondary Card Sort

A resource to support collaborative working

HIAS Maths Team

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Final Version

Overview

In this document

This document provides templates for sorting cards covering a range of secondary topics

Points to consider when using this resource

Students should work collaboratively and lessons should involve modelling and discussions about reasoning and decisions throughout.

Sets of cards will need to be prepared in advance.

Algebraic Fractions

$\dfrac{2x+5}{4x-1}$	$\dfrac{(2x+1)(2x-1)}{(2x-1)(x+3)}$	$\dfrac{4x^2-25}{8x^2-22x+5}$
$\dfrac{(3x-6)(x+3)}{(2x-6)(x+3)}$	$\dfrac{3x(x-2)}{(x-2)(x+3)}$	$\dfrac{3x}{x+3}$
$\dfrac{(2x-5)(2x+5)}{(4x-1)(2x-5)}$	$\dfrac{x^2+5x+6}{3x^2+x-10}$	$\dfrac{3x^2-6x}{x^2+x-6}$
$\dfrac{(x+2)(x+3)}{(3x-5)(x+2)}$	$\dfrac{4x^2-1}{2x^2+5x-3}$	$\dfrac{x+1}{x-1}$
$\dfrac{(x+3)}{(3x-5)}$	$\dfrac{x-1}{2x+1}$	$\dfrac{3x^2+3x-18}{2x^2-18}$
$\dfrac{6x^2+x-2}{9x^2-4}$	$\dfrac{2x+1}{x+3}$	$\dfrac{3(x-2)}{2(x-3)}$
$\dfrac{2x-1}{3x-2}$	$\dfrac{4x^2+x-3}{4x^2-7x+3}$	$\dfrac{(4x-3)(x+1)}{(4x-3)(x-1)}$
$\dfrac{(3x+2)(2x-1)}{(3x-2)(3x+2)}$	$\dfrac{(x+3)(x-1)}{(2x+1)(x+3)}$	$\dfrac{x^2+2x-3}{2x^2+7x+3}$

Fraction Cards – Adding Mixed Numbers

Questions:

$1\frac{3}{4}+3\frac{4}{5}$	$\frac{5}{4}+\frac{10}{3}$	$\frac{133}{63}+\frac{279}{63}$	$\frac{121}{20}$	$9\frac{17}{20}$
$2\frac{2}{3}+1\frac{8}{9}$	$\frac{11}{2}+\frac{9}{4}$	$\frac{15}{12}+\frac{40}{12}$	$\frac{218}{35}$	$5\frac{11}{20}$
$3\frac{2}{5}+2\frac{3}{7}$	$\frac{11}{4}+\frac{33}{10}$	$\frac{76}{20}+\frac{35}{20}$	$\frac{31}{4}$	$5\frac{1}{12}$
$\frac{2}{3}+1\frac{7}{8}$	$\frac{37}{6}+\frac{26}{5}$	$\frac{25}{20}+\frac{68}{20}$	$\frac{29}{12}$	$6\frac{8}{35}$
$3\frac{3}{4}+1\frac{1}{3}$	$\frac{19}{9}+\frac{31}{7}$	$\frac{22}{4}+\frac{9}{4}$	$\frac{55}{12}$	$2\frac{13}{24}$
$1\frac{3}{4}+\frac{2}{3}$	$\frac{5}{4}+\frac{17}{5}$	$\frac{55}{20}+\frac{66}{20}$	$\frac{61}{12}$	$6\frac{34}{63}$
$2\frac{3}{7}+3\frac{4}{5}$	$\frac{19}{5}+\frac{7}{4}$	$\frac{21}{12}+\frac{8}{12}$	$\frac{61}{24}$	$4\frac{13}{20}$
$6\frac{1}{6}+5\frac{1}{5}$	$\frac{15}{4}+\frac{4}{3}$	$\frac{85}{35}+\frac{133}{35}$	$\frac{123}{27}$	$11\frac{11}{30}$
$1\frac{1}{4}+3\frac{2}{5}$	$\frac{17}{7}+\frac{17}{5}$	$\frac{185}{30}+\frac{156}{30}$	$\frac{197}{20}$	$5\frac{11}{20}$
$3\frac{4}{5}+1\frac{3}{4}$	$\frac{17}{5}+\frac{17}{7}$	$\frac{16}{24}+\frac{45}{24}$	$\frac{93}{20}$	$2\frac{5}{12}$
$2\frac{1}{9}+4\frac{3}{7}$	$\frac{7}{4}+\frac{19}{5}$	$\frac{112}{35}+\frac{85}{35}$	$\frac{111}{20}$	$7\frac{3}{4}$
$5\frac{1}{2}+2\frac{1}{4}$	$\frac{7}{4}+\frac{2}{3}$	$\frac{72}{27}+\frac{51}{27}$	$\frac{111}{20}$	$4\frac{7}{12}$
$1\frac{1}{4}+3\frac{1}{3}$	$\frac{8}{3}+\frac{17}{9}$	$\frac{35}{20}+\frac{76}{20}$	$\frac{412}{63}$	$6\frac{1}{20}$
$2\frac{3}{4}+3\frac{3}{10}$	$\frac{2}{3}+\frac{15}{8}$	$\frac{45}{12}+\frac{16}{12}$	$\frac{341}{30}$	$4\frac{5}{9}$

Answers:

$1\frac{3}{4}+3\frac{4}{5}$	$\frac{7}{4}+\frac{19}{5}$	$\frac{35}{20}+\frac{76}{20}$	$\frac{111}{20}$	$5\frac{11}{20}$
$2\frac{2}{3}+1\frac{8}{9}$	$\frac{8}{3}+\frac{17}{9}$	$\frac{72}{27}+\frac{51}{27}$	$\frac{123}{27}$	$4\frac{5}{9}$
$3\frac{2}{5}+2\frac{3}{7}$	$\frac{17}{5}+\frac{17}{7}$	$\frac{112}{35}+\frac{85}{35}$	$\frac{197}{20}$	$9\frac{17}{20}$
$\frac{2}{3}+1\frac{7}{8}$	$\frac{2}{3}+\frac{15}{8}$	$\frac{16}{24}+\frac{45}{24}$	$\frac{61}{24}$	$2\frac{13}{24}$
$3\frac{3}{4}+1\frac{1}{3}$	$\frac{15}{4}+\frac{4}{3}$	$\frac{45}{12}+\frac{16}{12}$	$\frac{61}{12}$	$5\frac{1}{12}$
$1\frac{3}{4}+\frac{2}{3}$	$\frac{7}{4}+\frac{2}{3}$	$\frac{21}{12}+\frac{8}{12}$	$\frac{29}{12}$	$2\frac{5}{12}$
$2\frac{3}{7}+3\frac{4}{5}$	$\frac{17}{7}+\frac{19}{5}$	$\frac{85}{35}+\frac{133}{35}$	$\frac{218}{35}$	$6\frac{8}{35}$
$6\frac{1}{6}+5\frac{1}{5}$	$\frac{37}{6}+\frac{26}{5}$	$\frac{185}{30}+\frac{156}{30}$	$\frac{341}{30}$	$11\frac{11}{30}$
$1\frac{1}{4}+3\frac{2}{5}$	$\frac{5}{4}+\frac{17}{5}$	$\frac{25}{20}+\frac{68}{20}$	$\frac{93}{20}$	$4\frac{13}{20}$
$3\frac{4}{5}+1\frac{3}{4}$	$\frac{19}{5}+\frac{7}{4}$	$\frac{76}{20}+\frac{35}{20}$	$\frac{111}{20}$	$5\frac{11}{20}$
$2\frac{1}{9}+4\frac{3}{7}$	$\frac{19}{9}+\frac{31}{7}$	$\frac{133}{63}+\frac{279}{63}$	$\frac{412}{63}$	$6\frac{34}{63}$
$5\frac{1}{2}+2\frac{1}{4}$	$\frac{11}{2}+\frac{9}{4}$	$\frac{22}{4}+\frac{9}{4}$	$\frac{31}{4}$	$7\frac{3}{4}$
$1\frac{1}{4}+3\frac{1}{3}$	$\frac{5}{4}+\frac{10}{3}$	$\frac{15}{12}+\frac{40}{12}$	$\frac{55}{12}$	$4\frac{7}{12}$
$2\frac{3}{4}+3\frac{3}{10}$	$\frac{11}{4}+\frac{33}{10}$	$\frac{55}{20}+\frac{66}{20}$	$\frac{121}{20}$	$6\frac{1}{20}$

One Number as a Power of Another Card Sort

$\dfrac{1}{9}$	$\dfrac{1}{3^2}$	3^{-2}
$\dfrac{1}{32}$	$\dfrac{1}{2^5}$	2^{-5}
$\dfrac{1}{243}$	$\dfrac{1}{3^5}$	3^{-5}
$\dfrac{1}{25}$	$\dfrac{1}{5^2}$	5^{-2}
$\dfrac{1}{64}$	$\dfrac{1}{4^3}$	4^{-3}
$\dfrac{1}{125}$	$\dfrac{1}{5^3}$	5^{-3}
$\dfrac{1}{16}$	$\dfrac{1}{4^2}$	4^{-2}
$\dfrac{1}{216}$	$\dfrac{1}{6^3}$	6^{-3}
$\dfrac{1}{\sqrt{49}}$	$\dfrac{1}{7}$	7^{-1}
$\dfrac{1}{\sqrt[3]{125}}$	$\dfrac{1}{5}$	5^{-1}
$\dfrac{1}{\sqrt[3]{27}}$	$\dfrac{1}{3}$	3^{-1}
$\dfrac{1}{\sqrt[6]{64}}$	$\dfrac{1}{2}$	2^{-1}

$\dfrac{1}{4^2}$	$\dfrac{1}{3^2}$	$\sqrt[3]{27}$
5^{-2}	5^{-3}	5^{-1}
$\dfrac{1}{243}$	$\dfrac{1}{3^5}$	$\dfrac{1}{216}$
7^{-1}	$\dfrac{1}{5^2}$	$\dfrac{1}{9}$
$\dfrac{1}{64}$	$\dfrac{1}{\sqrt{49}}$	$\dfrac{1}{16}$
$\dfrac{1}{6^3}$	$\dfrac{1}{5^3}$	$\dfrac{1}{32}$
$\dfrac{1}{2^5}$	4^{-3}	4^{-2}
3^{-5}	3^{-2}	6^{-3}
$\dfrac{1}{4^3}$	$\dfrac{1}{7}$	$\dfrac{1}{25}$
$\dfrac{1}{\sqrt[3]{125}}$	$\dfrac{1}{3}$	2^{-5}
$\dfrac{1}{125}$	$\dfrac{1}{5}$	3^{-1}
$\dfrac{1}{\sqrt[6]{64}}$	$\dfrac{1}{2}$	2^{-1}

Standard Form Card Sort

3500	0.0035	3.5×10^4	0.0059
$1.9 \times 10 \times 10$	467	4.67×10^{-1}	4.67×10^{-2}
3.5×10000	3.5×10	4.67×10	3.5×10^3
0.000467	3.5×100	$4.67 \times 10 \times 10 \times 10$	$1.9 \times 10 \times 10 \times 10$
4.67×10^1	1900	$3.5 \div (10 \times 10)$	1.9×10^2
3.5×10^{-2}	3.5×10^{-3}	4.67×10^3	3.5×10^1
$3.5 \times 10 \times 10 \times 10$	$3.5 \times 10 \times 10$	1.9×10^3	$4.67 \div 10000$

4.67×10^2	$4.67 \div (10 \times 10)$	4.67×1000	35
$3.5 \div 100$	3.5×1000	$4.67 \times 10 \times 10$	$3.5 \div (10 \times 10 \times 10)$
190	0.467	350	4.67×10^{-4}
$3.5 \times 10 \times 10 \times 10 \times 10$	8200	$4.67 \div 100$	$4.67 \div 10$
4.67×100	1.9×1000	0.035	35000
3.5×10^2	46.7	$4.67 \div (10 \times 10 \times 10 \times 10)$	1.9×100
4670	$4.67 \div 10$	$3.5 \div 1000$	0.0467

Surds – Simplifiying Cards

√18	√9 × √2
√32	√16 × √2
4√2	√8
√4 × √2	2√2
3√2	√72
6√2	√36 × √2
√108	√36 × √3
6√3	√75
√25 × √3	5√3
4√5	√80

$\sqrt{45}$	$\sqrt{16} \times \sqrt{5}$
$\sqrt{3} \times \sqrt{15}$	$\sqrt{9} \times \sqrt{5}$
$3\sqrt{5}$	$4\sqrt{5}$
$\sqrt{4} \times \sqrt{5}$	$\sqrt{27}$
$2\sqrt{5}$	$\sqrt{20}$
$3\sqrt{3}$	$\sqrt{9} \times \sqrt{3}$
$\sqrt{12}$	$\sqrt{4} \times \sqrt{3}$
$2\sqrt{3}$	$\sqrt{50}$
$\sqrt{25} \times \sqrt{2}$	$5\sqrt{2}$

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