

1) Given $y = 4x - 10$, find the following missing term.

a) $(-2, \underline{\quad})$
 $\begin{matrix} x & y \\ \downarrow & \end{matrix}$

$$y = 4(x) - 10$$
$$y = 4(-2) - 10$$
$$y = -8 - 10$$
$$\boxed{y = -18}$$

b) $(\underline{\quad}, 18)$
 $\begin{matrix} x & y \\ \swarrow & \searrow \end{matrix}$

$$y = 4x - 10$$

$$18 = 4x - 10$$

$$18^{+10} = 4x - 10^{+10}$$

$$28 = 4x$$

$$\frac{28}{4} = \frac{4x}{4}$$

$$\boxed{7 = x}$$

Fraction multiplication

Rule

multiply top by top
and
bottom by bottom
then reduce

$$\text{Ex)} \quad \frac{4}{7} \times \frac{5}{6}$$

$$= \frac{4 \times 5}{7 \times 6}$$

$$= \frac{20}{42}$$

$$= \frac{10}{21}$$

$$\text{Ex)} \quad \frac{14 \div 7}{11} \times \frac{44}{21 \div 7}$$

$$= \frac{2}{11 \div 11} \times \frac{44 \div 11}{3}$$

$$= \frac{2}{1} \times \frac{4}{3}$$

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

Division of fraction

↳ flip 2nd fraction then multiply (Always Reduce final answer)

Ex) $\frac{7}{12} \div \frac{3}{4}$

$\frac{7}{12} \times \frac{4}{3}$

Reduce 1st

$\frac{7}{12 \div 4} \times \frac{4 \div 4}{3}$

$= \frac{7}{3} \times \frac{1}{3}$

$= \frac{7}{9}$

Reduce final answer

$\frac{7}{12} \times \frac{4}{3}$

$\frac{28}{36} \div 2$

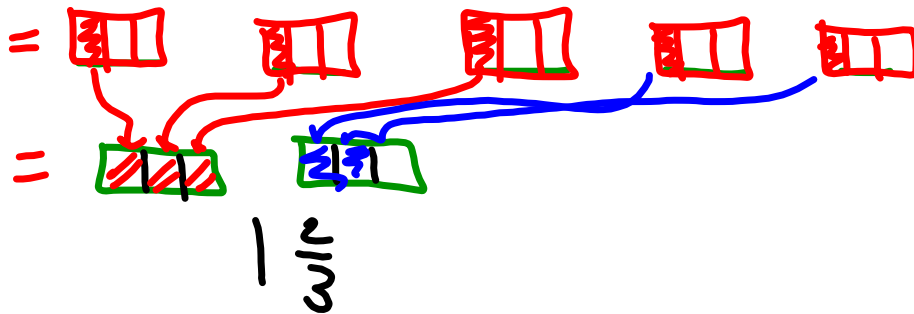
$\frac{14}{18} \div 2$

$= \frac{7}{9}$

Multiplication with tiles → boxes

$$5 \times \frac{1}{3}$$

↑ #group ↖ group 5.2

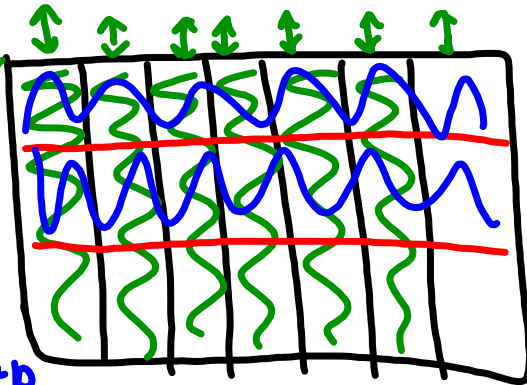


Model of fraction X fraction

$$\frac{6}{7} \times \frac{2}{3}$$

← shade 10 ← bottom dimensions of box

Shade in 6 of the 7 columns



Cut sides into 3's and Shade in 2 rows

Overlap

$$\frac{12}{21}$$

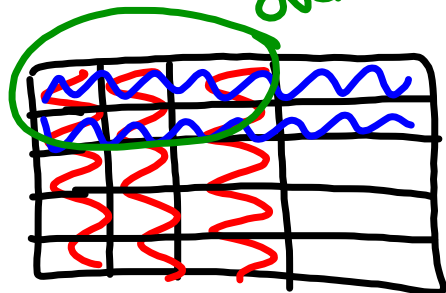
← overlap ← total blocks

Reduce

$$\frac{4}{7}$$

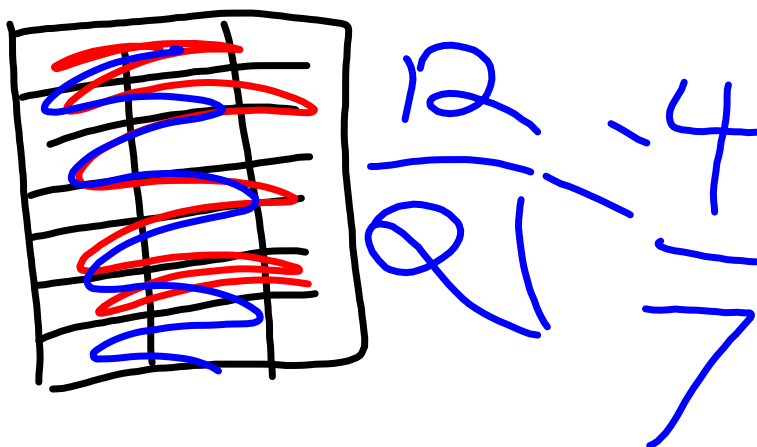
$$\frac{3}{4} \times \frac{2}{5}$$

overlap



$$\frac{6}{20} \text{ Reduce } \frac{3}{10}$$

$$\frac{6}{7} \times \frac{2}{3}$$



With Probability

$$P() = \frac{\# \text{ of interest}}{\text{total \# of}}$$

Probability of more than 2 events

$$P(A \text{ and } B) = P(A) \times P(B)$$
$$\frac{\#A}{\text{Total}} \times \frac{\#B}{\text{Total}}$$

Bag of Marbles has 3 red, 4 green, 1 orange
2 yellow, 5 blue. (always replace marbles)

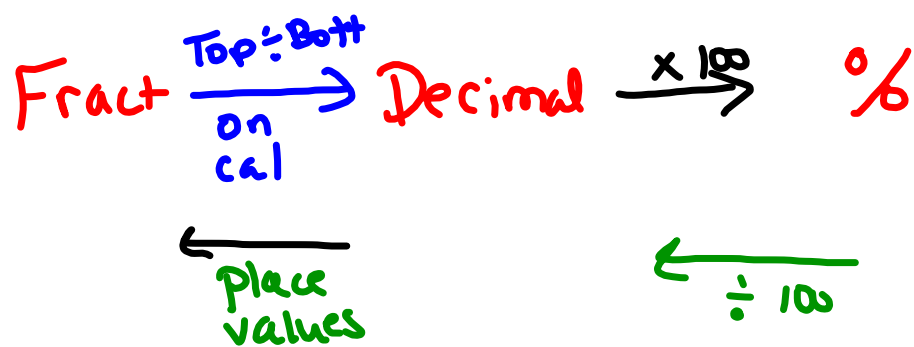
a) Probability of getting 2 orange marbles?

$$\begin{aligned}
 P(\text{Orange and orange}) &= P(\text{orange}) \times P(\text{orange}) \\
 &= \frac{\# \text{orange}}{\text{total}} \times \frac{\# \text{orange}}{\text{Total}} \\
 &= \frac{1}{15} \times \frac{1}{15} \\
 &= \frac{1}{225}
 \end{aligned}$$

Ex) 1 event

$$P(\text{Not green}) = \frac{\text{Not green}}{\text{total}} = \frac{11}{15}$$

$$\begin{aligned}
 P(\text{Not red 2 times}) &= P(\text{Not red}) \times P(\text{Not red}) \\
 &= \frac{12}{15} \times \frac{12}{15} \\
 &= \frac{4}{5} \times \frac{4}{5} \\
 &= \frac{16}{25}
 \end{aligned}$$



Sales tax

Tax in NB = 15% of Cost

Price with tax = Tax amount + Cost

Ex) Shirt cost \$18 what is the price with tax?

$$\begin{aligned}\text{Tax amount} &= 15\% \text{ of Cost} \\ &= 0.15 \times \$18 \\ &= \$2.70\end{aligned}$$

$$\begin{aligned}\text{Cost with tax} &= \text{Cost} + \text{tax amount} \\ &= \$18 + \$2.70 \\ &= \$20.70\end{aligned}$$

Discount (opposite to tax) subtract off

Ex) Radio cost \$60 and is discounted by 10%

a) what do you save?

$$\begin{aligned}\text{Save} &= 10\% \text{ of } \$60 \\ &= 0.10 \times 60 \\ &= \$6.00\end{aligned}$$

b) What is the Sales Price?

$$\begin{aligned}\text{Sales} &= \text{Cost} - \text{Discount} \\ &= \$60 - 6 \\ &= \$54\end{aligned}$$

If 60% of a number is = 54

$$\begin{array}{l} 60\% \text{ of } n = 54 \\ \div 6 \\ 10\% \text{ of } n = \underline{9} \\ \times 10 \end{array}$$

$$\boxed{100\% \text{ of } n = 90}$$

Ex)

$$30\% \text{ of } 120 = ?$$

$$\begin{array}{l} 10\% \text{ of } 120 = 12 \\ \times 3 \qquad \qquad \times 3 \end{array}$$

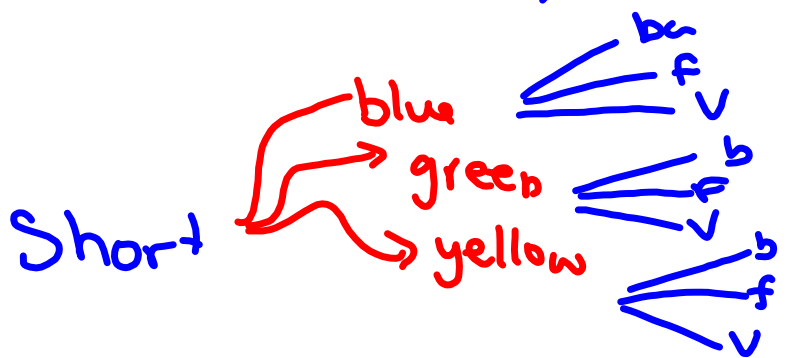
$$\boxed{30\% \text{ of } 120 = 36}$$

Probability Tree

Shirts → Blue, green, yellow

pants → Shorts, Jeans

Hats → ball, flordora, visor



$$3 \times 2 \times 3 = 18$$

↓
Total
Outcomes

