وزارة التربية والتعليم
MINISTRY OF EDUCATION



الصف السادس عام ريفيل

الوحدة الثانية

Fractions, Decimals, and Precents

اِحجِزْ مَكانَكَ وَاستَعِدَّ لِلْامتِحَانِ بِثِقَةٍ كَامِلَةٍ

احصل على الشرح الكامل للصف من خلال:

التواصل والحجز عبر الـ Whatsapp
اضغط على الرقم: 0566991363

للتواصل والحجز

للانتقال إلى المواقع
اضغط هنا

شرح الدروس

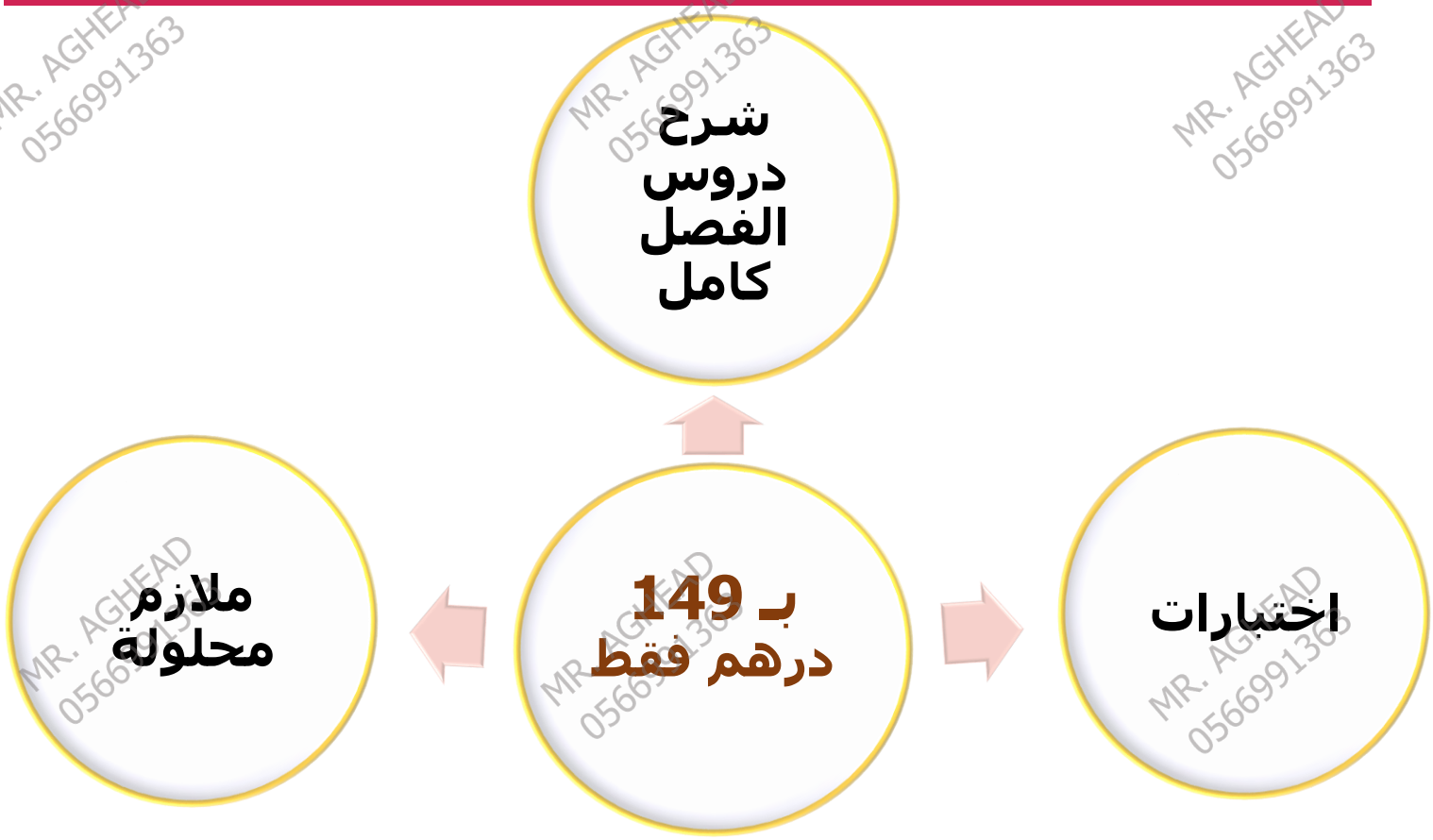
انضم للقناة



Mr. Aghead

MR. AGHEAD 0566991363

يمكنكم الحصول على



MR.AGHEAD **0566991363**

احصل على الشرح الكامل للصف من خلال:

التواصل والحجز عبر الـ Whatsapp

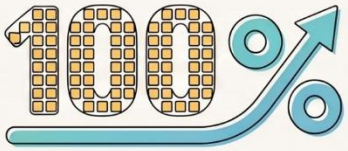
اضغط على الرقم: 0566991363

لا تتردد في التواصل
معنا قم بمسح الـ QR

Lesson 1 – Understand Precents

دليل فهم وتمثيل النسب المئوية

مفهوم النسبة المئوية وتمثيلها الرياضي



ما هي النسبة المئوية؟

هي نسبة أو معدل يقارن عدداً بالعدد 100، وتعني "لكل مئة" ويرمز لها بالرمز %.

صور التعبير عن النسبة

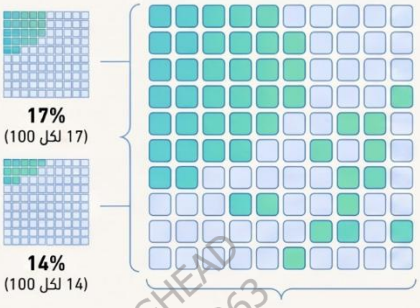
45%

$$\frac{45}{100} : \frac{45}{100} =$$

خطوات تمثيل النسبة المئوية بصرياً

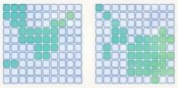
الخطوة 1: استخدام شبكة الـ 100 مربع

بما أن الشبكة تحتوي 100 مربع، فإن كل مربع يمثل 1%. ظلّل عدداً من المربعات يساوي النسبة المطلوبة.



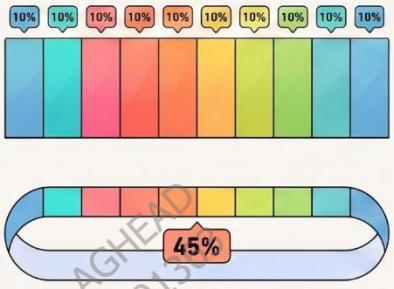
مرونة التظليل في الشبكة

لا يشترط تظليل المربعات بترتيب معين؛ المهم هو تظليل العدد الصحيح الذي يمثل النسبة.



الخطوة 2: استخدام المخطط الشريطي

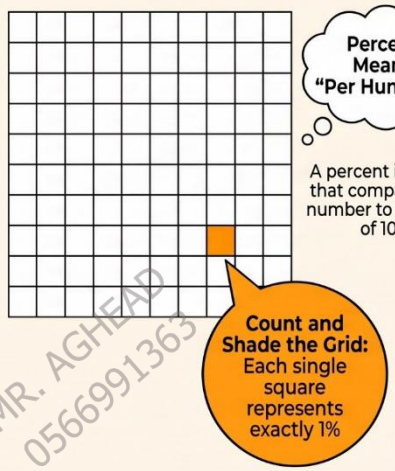
قسم الشريط إلى أجزاء متساوية (مثلاً 10 أجزاء لكل منها 10%) وظلل الأجزاء التي تمثل نسبتك.

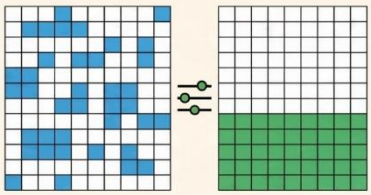


Mastering Percents: A Step-by-Step Visual Guide

Understand percent as a ratio comparing a number to 100, using visual models like grids and bars.

Step 1: Modeling with 10×10 Grids



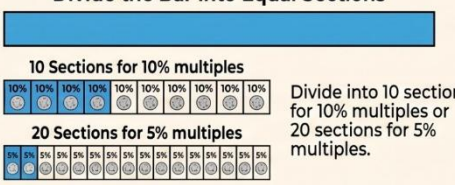


Shading Order Doesn't Matter

As long as the total count is correct, the shading pattern can vary.

Step 2: Modeling with Bar Diagrams

Divide the Bar into Equal Sections



Assign Value to Each Section



Each section represents a fixed percentage based on the total number of divisions.



Shade to Reach the Target Total

Fill the required number of sections to represent the specific percent value.

Quick Reference for Dividing Bar Diagrams Accurately

Target Multiple	Number of Sections	Percent per Section
Multiples of 10%	10	10%
Multiples of 5%	20	5%

احصل على الشرح كاملاً بـ 149 درهم فقط

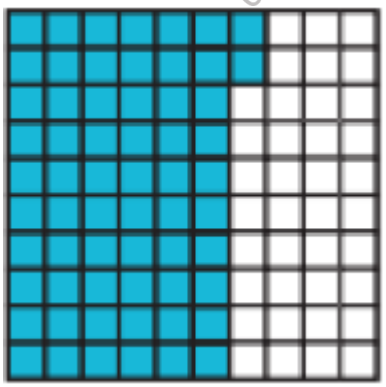
للتواصل اضغط الرقم: 0566991363

Choose the correct answer for each question:

❖ Example 1:

1. What percent is represented by the 10 × 10 grid?

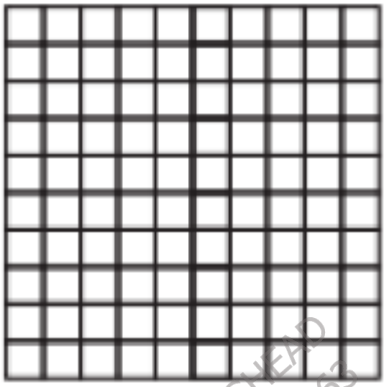
A. 52%
B. 58%
C. 62%
D. 68%



❖ Example 2:

2. A middle school newspaper surveyed the student body and found that 14% of the students surveyed chose horses as their favorite animal. Shade the 10 × 10 grid to model 14%

A. Shade 1 full column and 2 additional squares (12 squares total)
B. Shade 1 full column and 4 additional squares (14 squares total)
C. Shade 1 full column and 5 additional squares (15 squares total)
D. Shade 2 full columns (20 squares total)



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❖ Example 3:

3. What percent is represented by the bar diagram?

A. 20%
B. 40%
C. 50%
D. 60%



❖ Example 4:

4. Draw a bar diagram to model 35%

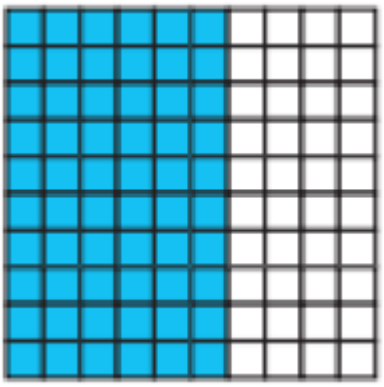
A. A bar diagram divided into 10 equal parts with 3 parts shaded 30%
B. A bar diagram divided into 20 equal parts with 7 parts shaded 35%
C. A bar diagram divided into 10 equal parts with 4 parts shaded 40%
D. A bar diagram divided into 5 equal parts with 2 parts shaded 40%

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❖ Practice:

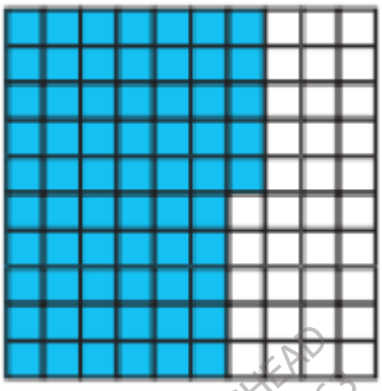
5. identify the percent represented by each 10×10 grid.

A. 40%
B. 50%
C. 60%
D. 70%



6. identify the percent represented by each 10×10 grid.

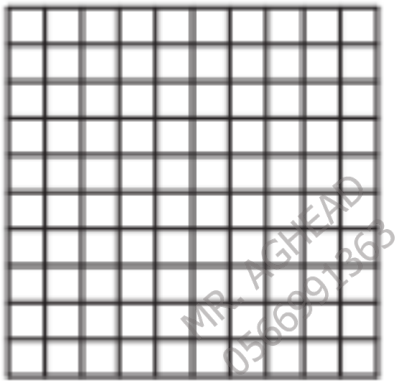
A. 54%
B. 60%
C. 65%
D. 74%



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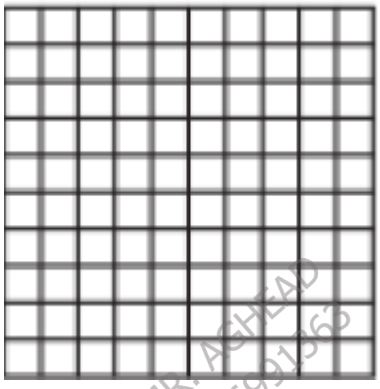
7. In a school survey, 12% of the students surveyed said they like camping. Shade the 10 × 10 grid to model 12%

A. Shade 1 full column and 1 additional square (11 squares total)	C. Shade 1 full column and 4 additional squares (14 squares total)
B. Shade 1 full column and 2 additional squares (12 squares total)	D. Shade 2 full columns (20 squares total)



8. Of the students in the lunch line, 9% said they were buying strawberry milk. Shade the 10 × 10 grid to model 9%

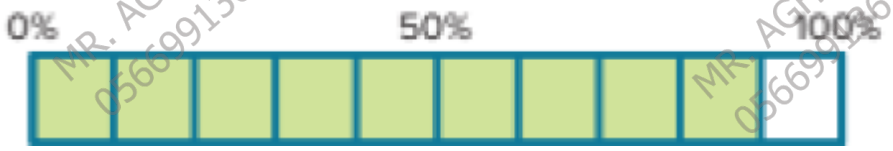
A. Shade 5 squares (5% total)
B. Shade 1 full column (10% total)
C. Shade 9 individual squares (9 squares total)
D. Shade 1 full column and 1 additional square (11% total)



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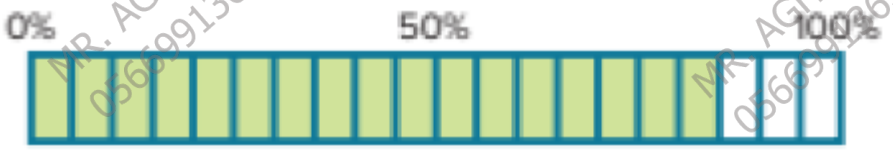
9. identify the percent represented by each bar diagram.

A. 80%
B. 90%
C. 95%
D. 100%



10. identify the percent represented by each bar diagram.

A. 75%
B. 80%
C. 85%
D. 90%



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Lesson 2 – Precents Greater Than 100% and Less Than 1%

فهم النسب المئوية: أكبر من 100% وأقل من 1%

تمثيل النسب المئوية الأكبر من 100%

الخطوة 1: تحديد النسبة ككسر مقامه 100

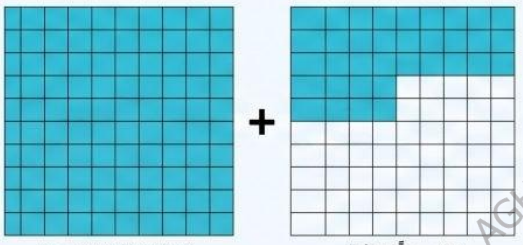
$125\% = \frac{125}{100}$

كتابة النسبة (مثل 125%) في صورة كسر (125/100) لتوضيح أن الجزء أكبر من الكل.

الخطوة 2: التظليل باستخدام أكثر من شبكة

تظليل شبكة كاملة (100 مربع) ثم الانتقال لتظليل المربعات المتبقية في شبكة ثانية.

مثال: تمثيل نسبة 125%



شبكة كاملة (100 مربع) + 25 مربعاً إضافية

125%

يتم تظليل شبكة 10 × 10 كاملة بالإضافة إلى 25 مربعاً من الشبكة الثانية.

تمثيل النسب المئوية الأقل من 1%

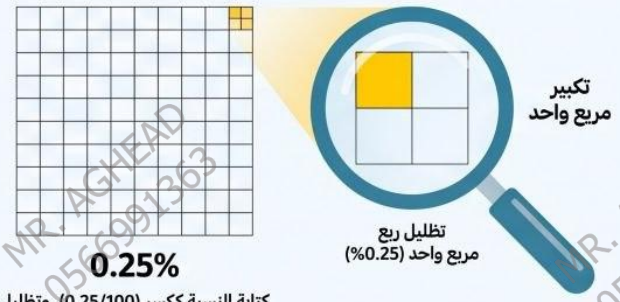
الخطوة 1: فهم القيمة الدقيقة

النسبة أقل من 1% تعني تظليل جزء بسيط من مربع واحد فقط داخل الشبكة.

الخطوة 2: استخدام التكبير للنمذجة

تظليل جزء من مربع واحد (مثل ربعه لتمثيل 0.25%) وتوضيحه برسم مكبر بجانب الشبكة.

مثال: تمثيل نسبة 0.25%



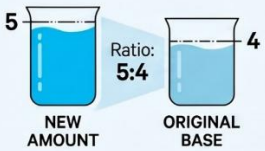
0.25%

كتابة النسبة ككسر (0.25/100)، وتظليل ربع مربع واحد فقط من أصل 100 مربع.

Mastering Extreme Percents: A Guide to >100% and <1%

SOLVING PERCENTS GREATER THAN 100%

Step 1: Create a "Part-to-Whole" Ratio



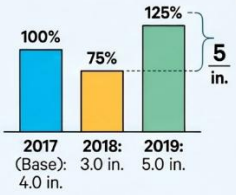
Compare the new amount to the original base (e.g., a ratio of 5:4).

Step 2: Scale the Ratio to 100

$\frac{5}{4} \times 25 \quad \frac{125}{100}$

Use multiplication to find an equivalent ratio with a denominator of 100.

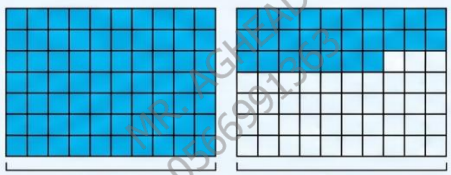
RAINFALL COMPARISON
(Example >100%)





Total: 125%

Step 3: Model with Multiple Grids



Shade one full grid for every 100% plus additional squares for the remainder.

SOLVING PERCENTS LESS THAN 1%

Identify Fractional Percents

These occur when the number being compared to 100 is less than 1.

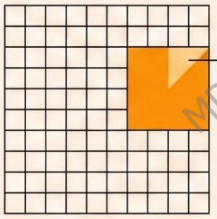
$< \frac{0.8}{100}$

Step 1: Calculate the Tiny Ratio

$\frac{\text{Part}}{\text{Whole}} \div$ e.g., **0.93** per 100

Divide the part by the whole to find the decimal percent (e.g., 0.93 per 100).

Step 2: Model Within a Single Square



On a 100-square grid, shade only a fraction of one single square.

احصل على الشرح كاملاً بـ 149 درهم فقط

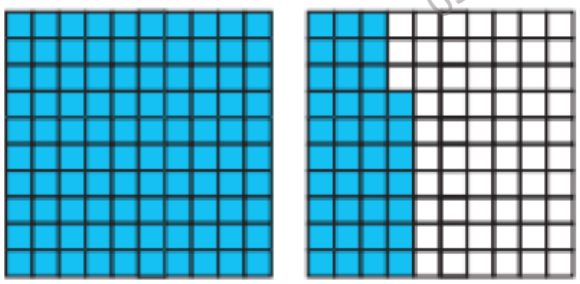
للتواصل اضغط الرقم: 0566991363

Choose the correct answer for each question:

❖ Example 1:

1. What percent is represented by the 10×10 grids?

A. 114%
B. 120%
C. 137%
D. 134%



❖ Example 2:

2. At birth, a male baby giraffe stands almost 6 feet tall. At 4 years of age, the male giraffe will be about three times as tall as at birth. Write a percent that compares the giraffe's height at 4 years of age to its height at birth. Then draw and shade 10×10 grids to model the percent.

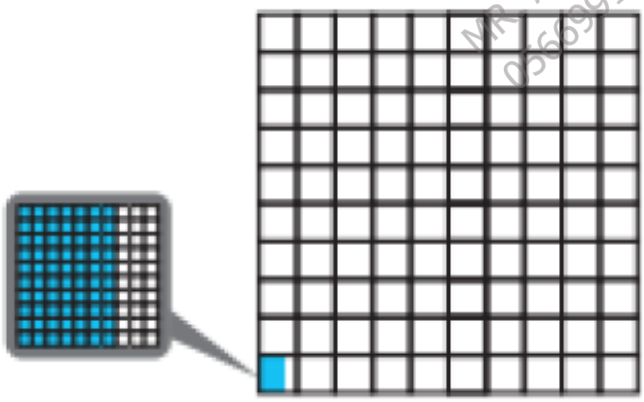
A. 150%; 1.5 grids shaded
B. 200%; 2 grids shaded
C. 300%; 3 completely shaded 10×10 grids
D. 350%; 3.5 grids shaded

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❖ Example 3:

3. What percent is represented by the 10×10 grid?

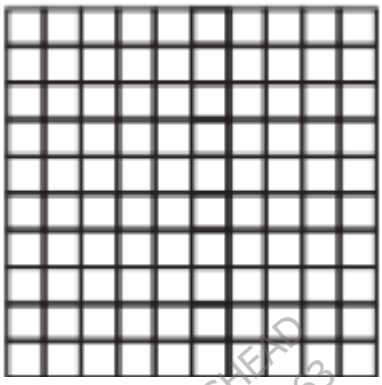
A. 0.52%
B. 0.58%
C. 0.70%
D. 0.68%



❖ Example 4:

4. The average weight of a brown bear is about 1,000 pounds. Suppose a large stuffed bear weighs 2.5 pounds. Write a percent to compare the weight of the stuffed animal to the weight of the brown bear. Then use the 10×10 grid to model the percent.

A. 0.025%; shade 0.025 of a square
B. 0.25%; shade $\frac{1}{4}$ of a single square
C. 2.5%; shade 2 full squares and half of another
D. 25%; shade 25 squares

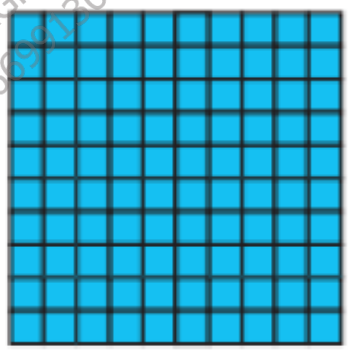


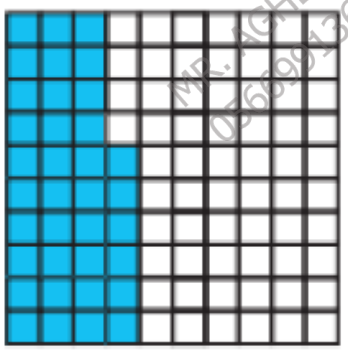
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❖ Practice:

5. Identify the percent represented by the 10 × 10 grids.

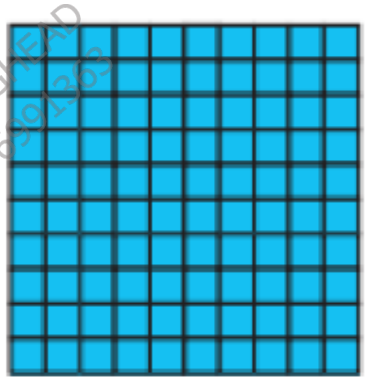
A. 136%
B. 140%
C. 146%
D. 156%

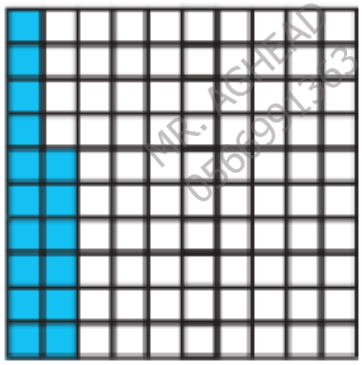




6. Identify the percent represented by the 10 × 10 grids.

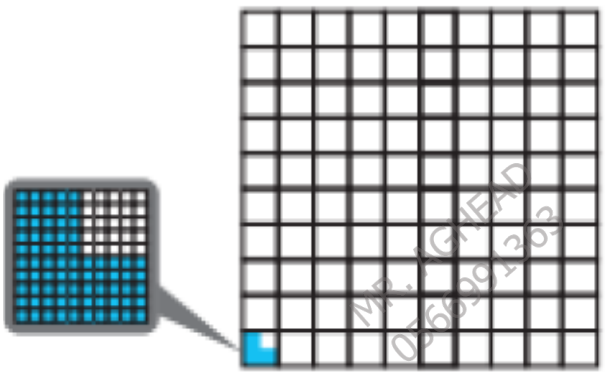
A. 105%
B. 116%
C. 125%
D. 130%





7. Identify the percent represented by the 10 × 10 grids.

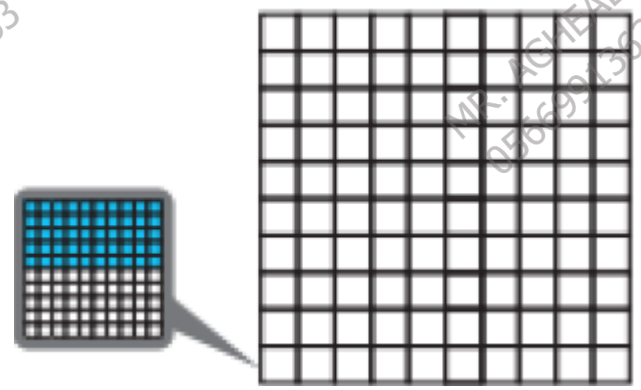
A. 0.22%
B. 0.75%
C. 0.42%
D. 3.2%



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8. Identify the percent represented by the 10×10 grids.

A. 0.25%
B. 0.5% (or 0.50%)
C. 0.75%
D. 5%



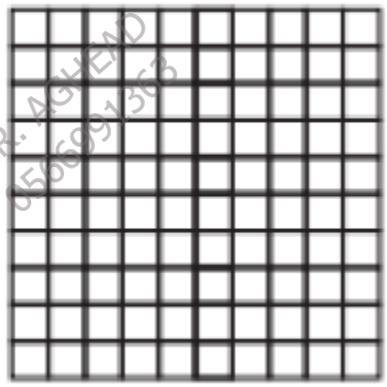
9. The size of a large milkshake is 1.4 times the size of a medium milkshake. Write a percent that compares the size of the large milkshake to the size of the small [medium] milkshake. Then draw and shade 10×10 grids to model the percent.

A. 14%; 14 squares shaded
B. 104%; 1 grid and 4 squares shaded
C. 140%; 1 completely shaded 10×10 grid and 4 columns (or 40 squares) of another grid
D. 410%; 4 grids and 10 squares shaded

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10. The Freedom Tower is 1,776 feet tall. Mr. Feeman's students are building a replica of the tower for a class project that will stand 4.44 feet tall. Write a percent that compares the height of the replica to the height of the actual tower. Then shade the 10×10 grid to model the percent.

A. 0.025%; shade 0.025 of a square
B. 0.25%; shade $\frac{1}{4}$ of a single square
C. 2.5%; shade 2 full squares and half of another
D. 25%; shade 25 squares



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Lesson 3 – Relate Fractions, Decimals, and Precents

دليل الربط بين الكسور والأعداد العشرية والنسب المئوية

تحويل الكسور والأعداد الكسرية إلى نسبة مئوية

استخدم الكسور المتكافئة للوصول لمقام 100.

أولاً

$\frac{1}{4} \xrightarrow{\times 25} \frac{25}{100}$

اضرب البسط والمقام في نفس العدد لجعل المقام يساوي 100.

ثانياً

للأعداد الكسرية: حوّلها لكسر غير فعلي أولاً.

$2\frac{9}{10} \rightarrow \frac{29}{10} \xrightarrow{\%} \frac{290}{100} = 290\%$

مثال: $2\frac{9}{10}$ تصبح $\frac{29}{10}$، ثم تُضرب لتصبح $\frac{290}{100}$ أي 290%.

ثالثاً

بسّط الكسر أولاً إذا كان المقام لا يضرب مباشرة في 100.

$\frac{9}{15} \rightarrow \frac{3}{5} \rightarrow \frac{60}{100} \rightarrow 60\%$

مثال: $\frac{9}{15}$ تُبسط إلى $\frac{3}{5}$، ثم تُحول إلى $\frac{60}{100}$ لتصبح 60%.

100
النسبة المئوية هي مقارنة مع 100.
%

$35\% \rightarrow 35 : 100 \rightarrow \frac{35}{100}$

تُكتب النسبة المئوية (مثل 35%) كنسبة 35 : 100 أو كسر $\frac{35}{100}$.

تحويل النسبة المئوية إلى كسر وعشري

لتحويلها لكسر: ضع العدد فوق 100 ثم بسّط.

$95\% \rightarrow \frac{95}{100} \rightarrow \frac{19}{20} \rightarrow \frac{19}{20}$

مثال: 95% تصبح $\frac{95}{100}$، وبالقسمة على 5 تصل لأبسط صورة $\frac{19}{20}$.

لتحويلها لعشري: حرك الفاصلة منزلتين لليسار.

$35\% \rightarrow 35. \rightarrow 0.35$

مثال: 35% تعني خمسة وثلاثون جزءاً من مئة، وتُكتب 0.35.

MASTER THE MATH TRIO:

Fractions, Decimals, and Percents

A percent is a ratio that compares a number to 100. By understanding place-value reasoning and equivalent ratios, you can seamlessly convert any value between its fraction, decimal, and percent forms.

FROM PERCENT TO FRACTION AND DECIMAL

35% → $\frac{35}{100}$

Step 1: Write as a Fraction over 100

Use the definition of percent to place the number over a denominator of 100 (e.g., 35% becomes 35/100).

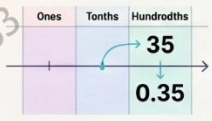
Step 2: Simplify the Ratio

Divide the numerator and denominator by their greatest common factor to find the simplest form (e.g., 35/100 = 7/20).

$\frac{35}{100} \xrightarrow{\div 5} \frac{7}{20}$

Step 3: Use Place Value for Decimals

Read the fraction as hundredths to place the decimal point correctly (e.g., 35/100 is "thirty-five hundredths" or 0.35).



35% = $\frac{7}{20}$ = 0.35

FROM FRACTION TO PERCENT

Step 1: Target the 100 Denominator

Multiply the numerator and denominator by the same number to make the denominator 100 (e.g., for 3/20, multiply by 5 to get 15/100).

$\frac{3}{20} \xrightarrow{\times 5} \frac{15}{100}$

Step 2: Handle Mixed Numbers First

Convert mixed numbers to improper fractions before finding an equivalent ratio with 100 (e.g., 2 9/10 becomes 29/10, then 290/100).

$2\frac{9}{10} = \frac{29}{10} \xrightarrow{\times 10} \frac{290}{100}$

Simplify Before Scaling

If the denominator isn't a factor of 100, simplify the fraction first to find a usable factor.

$\frac{8}{40} \rightarrow \frac{1}{5} \xrightarrow{\times 20} \frac{20}{100}$

QUICK REFERENCE FOR COMMON CONVERSIONS

	Fraction (Simplest Form)	Decimal
35%	$\frac{7}{20}$	
95%	$\frac{19}{20}$ 19/20	0.95
70%	$\frac{7}{10}$ 7/10	0.7

35% $\frac{7}{20}$ 0.35 $\frac{3}{20}$ $2\frac{9}{10}$

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Choose the correct answer for each question:

❖ Example 1:

1. In a recent survey, 22% of E-mail users claimed to spend less time using E-mail because of spam. What fraction of E-mail users is this? What decimal is this?

A. Fraction: $\frac{1}{5}$, Decimal: 0.2
B. Fraction: $\frac{11}{50}$, Decimal: 0.22
C. Fraction: $\frac{11}{25}$, Decimal: 0.44
D. Fraction: $\frac{22}{5}$, Decimal: 2.2

❖ Example 2:

2. Write $\frac{4}{16}$ as a percent and as a decimal.

A. Percent: 20%, Decimal: 0.2
B. Percent: 25%, Decimal: 0.25
C. Percent: 40%, Decimal: 0.4
D. Percent: 4, Decimal: 2.5

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❖ Example 3:

3. When blue whales feed, they can take in $1\frac{1}{25}$ times their body weight in food and water in one single gulp. What percent of their body weight is this?

A. 10.4%
B. 104%
C. 140%
D. 1,040%

❖ Example 4:

4. Write 1.4 as a percent and as a mixed number.

A. Percent: 14%, Mixed Number: $1\frac{1}{5}$
B. Percent: 140%, Mixed Number: $1\frac{1}{4}$
C. Percent: 140%, Mixed Number: $1\frac{2}{5}$
D. Percent: 1,400%, Mixed Number: $1\frac{4}{5}$

❖ Practice:

5. Write each percent as a fraction in simplest form and as a decimal
45%

A. Fraction: $\frac{4}{5}$, Decimal: 0.8
B. Fraction: $\frac{9}{25}$, Decimal: 0.36
C. Fraction: $\frac{9}{20}$, Decimal: 0.45
D. Fraction: $\frac{45}{10}$, Decimal: 4.5

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6. Write each percent as a fraction in simplest form and as a decimal
72%

A. Fraction: $\frac{7}{10}$, Decimal: 0.7
B. Fraction: $\frac{18}{25}$, Decimal: 0.72
C. Fraction: $\frac{36}{50}$, Decimal: 0.36
D. Fraction: $\frac{4}{5}$, Decimal: 0.8

7. Write each percent as a fraction in simplest form and as a decimal
80%

A. Fraction: $\frac{3}{4}$, Decimal: 0.75
B. Fraction: $\frac{8}{10}$, Decimal: 0.8
C. Fraction: $\frac{4}{5}$, Decimal: 0.8
D. Fraction: $\frac{9}{10}$, Decimal: 0.9

8. Write each fraction as a percent and as a decimal.
$\frac{3}{20}$

A. Percent: 12%, Decimal: 0.12
B. Percent: 15%, Decimal: 0.15
C. Percent: 30%, Decimal: 0.3
D. Percent: 35%, Decimal: 0.35

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9. Write each fraction as a percent and as a decimal.

$1\frac{3}{4}$

A. Percent: 125%, Decimal: 1.25
B. Percent: 150%, Decimal: 1.5
C. Percent: 175%, Decimal: 1.75
D. Percent: 180%, Decimal: 1.8

10. Write each fraction as a percent and as a decimal.

$\frac{5}{8}$

A. Percent: 58%, Decimal: 0.58
B. Percent: 60%, Decimal: 0.6
C. Percent: 62.5%, Decimal: 0.625
D. Percent: 65%, Decimal: 0.65

11. Write each decimal as a percent and as a fraction in simplest form.

0.89

A. Percent: 8.9%, Fraction: $\frac{89}{1000}$
B. Percent: 89%, Fraction: $\frac{89}{100}$
C. Percent: 890%, Fraction: $\frac{89}{10}$
D. Percent: 89%, Fraction: $\frac{9}{10}$

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12. Write each decimal as a percent and as a fraction in simplest form.
0.82

A. Percent: 8.2%, Fraction: $\frac{41}{500}$
B. Percent: 82%, Fraction: $\frac{41}{50}$
C. Percent: 82%, Fraction: $\frac{4}{5}$
D. Percent: 820%, Fraction: $\frac{82}{10}$

13. Write each decimal as a percent and as a fraction in simplest form.
0.65

A. Percent: 6.5%, Fraction: $\frac{13}{200}$
B. Percent: 65%, Fraction: $\frac{13}{25}$
C. Percent: 65%, Fraction: $\frac{13}{20}$
D. Percent: 65%, Fraction: $\frac{3}{4}$

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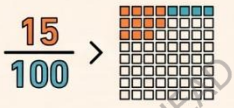
Lesson 4 – Find the Precent of a Number

دليل الطالب: كيف تجد النسبة المئوية من عدد؟

الخطوات التحضيرية للحل



تحديد المعطيات: ابدأ دائماً
بتحديد القيمة الإجمالية والنسبة المئوية المطلوبة لمعرفة ما تبحث عنه.



النسبة المئوية هي معدل لكل 100:
فهم أن 15% تعني "15 لكل 100" يسهل عملية الحل الذهني السريع.

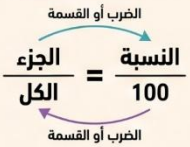
استراتيجيات الحل المختارة

استخدام مخطط الشريحة (Bar Diagram)



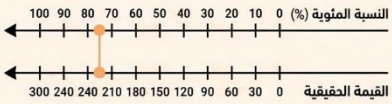
قسّم الشريحة إلى 10 أجزاء متساوية، حيث يمثل كل قسم 10% من القيمة الإجمالية.

استخدام النسب المتكافئة (Equivalent Ratios)



اكتب معادلة تربط بين (الجزء/الكل) و(النسبة/100) ثم استخدم الضرب أو القسمة للحل.

استخدام خط الأعداد المزدوج (Double Number Line)



ارسم خطين متوازيين للمقارنة البصرية المباشرة بين الأعداد النسبية والقيم الحقيقية.

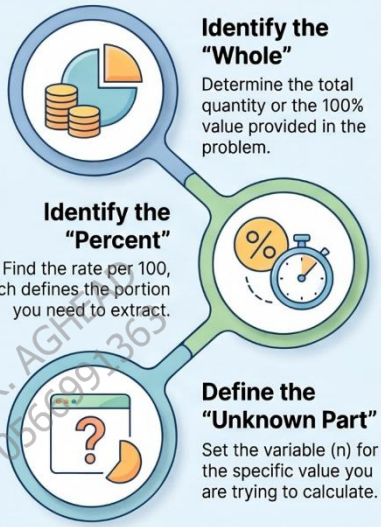
مثال توضيحي: توزيع الوجبات الخفيفة (Snack) لـ 300 طالب

الصنف	النسبة المئوية	طريقة الحساب (لكل 100)
الجبن	15%	15 + 15 + 15 = 45 طالب
الفواكه	23%	23 + 23 + 23 = 69 طالب
الخضروات	17%	17 + 17 + 17 = 51 طالب

Master the Math: Finding the Percent of a Number

A step-by-step guide and strategies to calculate the "part" when given a "whole" and a "percent".

The 3-Step Setup

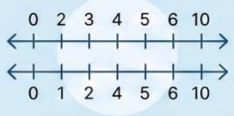


Identify the "Whole"
Determine the total quantity or the 100% value provided in the problem.

Identify the "Percent"
Find the rate per 100, which defines the portion you need to extract.

Define the "Unknown Part"
Set the variable (n) for the specific value you are trying to calculate.

3 Ways to Solve





The Bar Diagram Method
Divide a bar into equal sections (like 10 units) to represent parts of the whole.



Category	Value A (Target)	Value B (Whole)
Percent	20	100
Number of People	10	50

Ratio Tables & Scaling
Use a table to scale 100% down or up to reach your target percentage.



$$\left[\frac{\text{Part}}{\text{Whole}}\right] = \left[\frac{\text{Percent}}{100}\right]$$

$$\left[\frac{n}{50}\right] = \left[\frac{20}{100}\right]$$

Equivalent Ratio Equations
Solve the equation:
[Part / Whole] = [Percent / 100].

احصل على الشرح كاملاً بـ 149 درهم فقط

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Choose the correct answer for each question:

❖ Example 1:

1. Approximately 11% of the U.S. population is left-handed. If there are 700 students at a middle school, about how many of them are expected to be left-handed?

A. 7 students
B. 77 students
C. 110 students
D. 770 students

❖ Example 2:

2. What is 70% of 580? Use any strategy

A. 36.6	B. 40.6
C. 406	D. 4060

❖ Example 3:

3. What is 275% of 4? Use any strategy

A. 1.1
B. 10.1
C. 11
D. 110

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❖ Example 4:

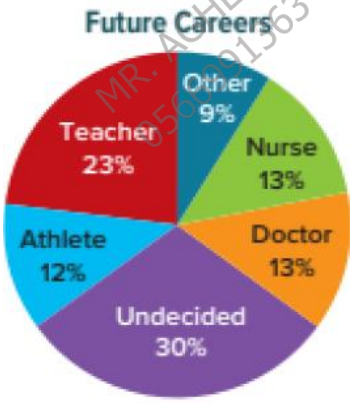
4. What is 0.55% of 220? Use any strategy

A. 0.121
B. 1.21
C. 12.1
D. 121

❖ Practice:

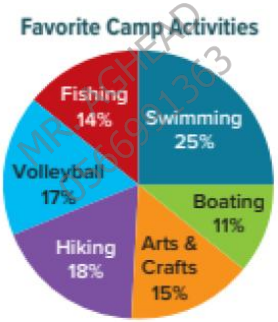
5. Use any strategy to solve each problem.
The graph shows the career interests of the students at Linda's school. Suppose there are 400 students at the school. How many of them want to be an athlete?

A. 36 students
B. 48 students
C. 52 students
D. 60 students



6. Use any strategy to solve each problem.
The graph shows the favorite activities of campers at a summer camp. Suppose there are 300 campers at the camp. How many campers favor fishing?

A. 35 campers
B. 38 campers
C. 42 campers
D. 45 campers



للتواصل اضغط الرقم: 0566991363

احصل على الشرح كاملاً بـ 149 درهم فقط

7. Use any method to find the percent of each number.
$15\%\ of\ 240$

A. 24
B. 36
C. 45
D. 360

8. Use any method to find the percent of each number.
$65\%\ of\ 180$

A. 108
B. 117
C. 125
D. 130

9. Use any method to find the percent of each number.
$250\%\ of\ 82$

A. 164
B. 192
C. 205
D. 210

10. Use any method to find the percent of each number.
$150\%\ of\ 44$

A. 55
B. 66
C. 72
D. 88

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11. Use any method to find the percent of each number.
$0.15\% \; of \; 350$

A. 0.0525
B. 0.525
C. 5.25
D. 52.5

12. Use any method to find the percent of each number.
$0.4\% \; of \; 168$

A. 0.0672
B. 0.672
C. 6.72
D. 67.2

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Lesson 5 – Estimate the Precent Of a Number

تقدير النسبة المئوية من عدد

يركز هذا المحتوى على كيفية تحويل النسب المئوية الصعبة (مثل 27%) إلى نسب مرجعية" سهلة (مثل 25%) واستخدام التقريب للأعداد الكلية لتسهيل الحساب الذهني.

القواعد الأساسية للتقدير

10% $\frac{1}{10}$ | 20% $\frac{1}{5}$ | 25% $\frac{1}{4}$ | 50% $\frac{1}{2}$ | 75% $\frac{3}{4}$

النسب المئوية المرجعية

هي نسب شائعة يسهل حسابها مثل 10%، 20%، 25%، 50%، و75%.

الربط بين النسب والكسور

النسبة المئوية	الكسر المقابل
25%	$\frac{1}{4}$
20%	$\frac{1}{5}$
50%	$\frac{1}{2}$

تقريب الأعداد

27% 25%

42 – 40

قرب النسبة المئوية أو العدد الكلي لأقرب قيمة تسهل عملية الضرب أو القسمة ذهنياً.

نموذج الشريط

مثال: تقدير 27% من 40



خطوات الحل

الخطوة 1: اختيار النسبة المرجعية

27% / 25%

بما أن 27% قريبة من 25%، نستخدم 25% كبديل أسهل.

الخطوة 2: التحويل إلى كسر

25% $\frac{1}{4}$

نعلم أن 25% تساوي الكسر 1/4.

الخطوة 3: الحساب النهائي

40 ÷ 4 = 10

نقسم العدد (40) على 4، ليكون الناتج التقديري هو 10.

MASTERING PERCENT ESTIMATION

BENCHMARK PERCENTS

BENCHMARK PERCENT	EQUIVALENT FRACTION
25%	1/4
20%	1/5
10%	1/10

1. PREPARE THE NUMBERS

Identify Benchmark Percents

Use common, easy-to-calculate percents like 10%, 20%, 25%, 50%, or 100%.

10% 20% 20% 50% 100%

Round for Compatibility

Round the percent or the whole number to the nearest benchmark for easier mental math.

19% → 20%

402 → 400

2. CALCULATE THE ESTIMATE

Use a Bar Diagram



Apply Equivalent Ratios

Set up a ratio of (Part/Whole) equal to (Percent/100) and soive for the unknown value.

$$\frac{\text{PART}}{\text{WHOLE}} = \frac{\text{PERCENT}}{100}$$

3. CHECK FOR REASONABLENESS

Compare your estimate to the original numbers to ensure the answer makes sense.



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احصل على الشرح كاملاً بـ 149 درهم فقط

Choose the correct answer for each question:

❖ Example 1:

1. Of the 78 campers at a youth camp, 63% have birthdays in the spring. About how many campers have birthdays in the spring?

A. 42 campers
B. 49 campers
C. 55 campers
D. 63 campers

❖ Example 2:

2. Estimate 76% of 122. Use any strategy.

A. 75
B. 90
C. 100
D. 120

❖ Practice:

3. estimate each percent. Show your estimation.
   51% of 62

A. 20
B. 30
C. 40
D. 50

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4. estimate each percent. Show your estimation.
   26% of 78

A. 15
B. 20
C. 25
D. 30

5. estimate each percent. Show your estimation.
   39% of 198

A. 60
B. 70
C. 80
D. 90

6. estimate each percent. Show your estimation.
   78% of 148

A. 100
B. 110
C. 120
D. 130

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7. estimate each percent. Show your estimation.
   19% of 103

A. 20
B. 25
C. 30
D. 40

8. estimate each percent. Show your estimation.
   98% of 59

A. 50
B. 60
C. 70
D. 80

9. Emilia and her three sisters went out to dinner. The total cost of their dinner was 38.75$. They want to leave a tip that is 23% of the total bill. About how much of a tip should they leave?

A. 6$
B. 8$
C. 12$
D. 15$

10. Karl earned $188 last month doing chores after school. If 68% of the money he earned was from doing yard work, about how much did Karl earn doing yard work?

A. 110$	B. 120$
C. 128$	D. 140$

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Lesson 6 – Find the Whole

إيجاد القيمة الكاملة (الكل): دليلك لحل مسائل النسب المئوية

توضيح الاستراتيجيات المختلفة لإيجاد القيمة الإجمالية (100%) عندما يكون "الجزء" و"النسبة المئوية" معروفين.

فهم المسألة (المنطلق)

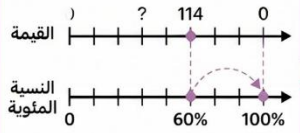


الهدف هو 100%
ابحث دائماً عن القيمة التي تقابل نسبة 100% لتصل إلى "الكل".

تحديد "الجزء" و"النسبة"
ابدأ بتحديد الرقم المعطى والنسبة المئوية التي يمثلها (مثلاً: 114 طالباً يمثلون 60%).

استراتيجيات الحل الخطوية

خط الأعداد المزدوج (Double Number Line)



ضع النسب في الأسفل والقيم في الأعلى، وتحرك بزيادات ثابتة حتى تصل إلى 100%.

جدول النسب (Ratio Table)

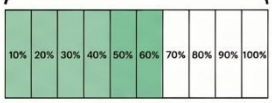
القيمة	النسبة
114	60%
19	10%
190	100%

×6 ، ×10

استخدم القسمة لتبسيط النسبة، ثم الضرب للتوسع والوصول إلى 100%.

مخطط الأشرطة

الكل (100%)؟ ?



قسم الشريط إلى أجزاء متساوية (مثل 10% لكل جزء) ووزع القيمة عليها بالتساوي.

أمثلة محلولة من واقع المنهج

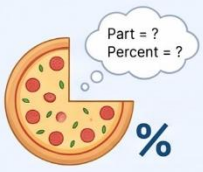
الجزء: 114 طالباً (60%)
الكل: ⟵ 190 طالباً

الجزء: 90 أغنية (75%)
الكل: ⟵ 120 أغنية

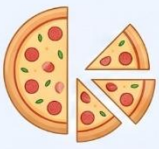
الجزء: 15 دولاراً (30%)
الكل: ⟵ 50 دولاراً

Finding the Whole: A Step-by-Step Guide

The 3-Step Strategy

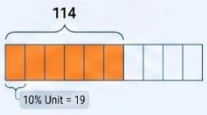


Step 1: Identify Your Givens
Clearly label the known "part" value and its corresponding "percent" from the problem.



Step 2: Find the Value of One Unit
Divide the known part by its percentage units to find the value of 10%.

$$\frac{\text{Part}}{\text{Percent}} = \text{Value of 10\%}$$

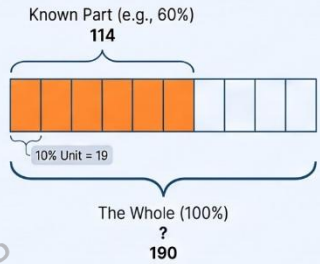


Step 3: Scale Up to 100%
Multiply the 10% unit value by 10 to determine the final "whole" amount.

$$\text{Value of 10\%} \times 10 = \text{The Whole (100\%)}$$

Visualizing the Solution

The Bar Diagram Method



Draw 10 sections of 10% each; shade the known percentage to find the whole.

Scaling with Ratio Tables

Category	Part (60%)	Single Unit (10%)	The Whole (100%)
Number of Students	114	19 (Divide by 6)	190 (Multiply by 10)
Percent (%)	60%	10%	100%

Use a table to scale back to 10% and then forward to 100%.

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Choose the correct answer for each question:

❖ Example 1:

1. In the first year of ownership, a new car lost 20% of its value. If the car lost $4,200 of its value, how much did the car originally cost? Use any strategy.

A. 8400$
B. 16800$
C. 21000$
D. 42000$

❖ Example 2:

2. Kai calculates that he spends 15% of the school day in science class. If he spends 75 minutes in science class, how many minutes long is Kai's school day?

A. 450 minutes
B. 500 minutes
C. 550 minutes
D. 750 minutes

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❖ Practice:

3. Yolanda's club requires that 80% of the members be present for any vote. If at least 20 members must be present to have a vote, how many members does the club currently have?

A. 25 members
B. 20 members
C. 30 members
D. 100 members

4. Action movies make up 25% of Sara's DVD collection. If she has 16 action DVDs, how many DVDs does Sara have in her collection?

A. 48 DVDs
B. 56 DVDs
C. 80 DVDs
D. 64 DVDs

5. Marcus saved 10$ because he bought a baseball glove that was on sale for 40% off. What was the original price of the baseball glove?

A. 25$
B. 20$
C. 40$
D. 50$

6. 55% Of the students in the marching band, plan to go to the school dance. If there are 110 students in the marching band that are going to the dance, how many students are in the marching band?

A. 150 students	B. 220 students
C. 180 students	D. 200 students

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7. Melcher used 24% of the memory card on his digital camera while taking pictures at a family reunion. If Melcher took 96 pictures at the family reunion, how many pictures can the memory card hold?

A. 400 pictures	B. 300 pictures
C. 350 pictures	D. 450 pictures

8. Mallorie has 12$ in her wallet. If this is 20% of her monthly allowance, what is her monthly allowance?

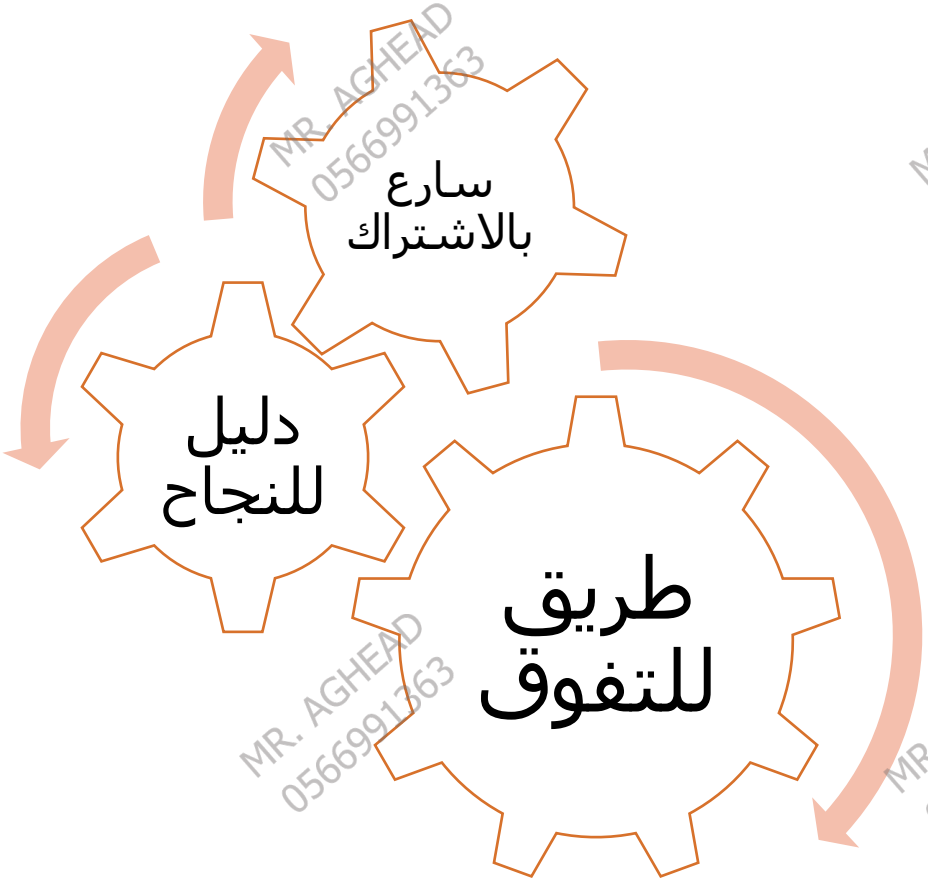
A. 48$	B. 50$
C. 120$	D. 60$

9. The table shows the number of minutes Tim has for lunch and study hall. He calculates that these two periods account for 18% of the minutes he spends at school. How many minutes does he spend at school?

A. 400 minutes	B. 450 minutes
C. 500 minutes	D. 550 minutes

Period	Number of Minutes
Lunch	45
Study Hall	45

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مع أطيب التمنيات بالنجاح والتوفيق ...

النهاية ...

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