THE STRIVING

MUSLIM ACADEMY

Islamic and Academic Education

YEARS 7 TO 9 · MATHEMATICS · PRACTICE PACK

Ratio, proportion and rates of change

The key stage 3 programme of study. The sets get harder through the pack, from arriving in Year 7 to leaving Year 9, and every question is worked through at the back.

WHAT IS INSIDE

- Changing between units
- Ratio notation and sharing
- Percentage increase, decrease and the original
- Proportion, speed, pricing and density
- How each one is worked

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4 sets · a hint on every question

Written for a parent teaching at home. No training assumed, and nothing else to buy.

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Percentage increase, decrease and the original

These get harder as you go down. Do them in order.



1. **A plant is 80 cm tall and grows by 25%. How tall is it now?**
   Growing by 25% means ending up with 125% of what you started with.

2. **A plant is 200 cm tall and grows by 5%. How tall is it now?**
   Growing by 5% means ending up with 105% of what you started with.

3. **A plant is 60 cm tall and grows by 10%. How tall is it now?**
   Growing by 10% means ending up with 110% of what you started with.

4. **A plant is 50 cm tall and grows by 30%. How tall is it now?**
   Growing by 30% means ending up with 130% of what you started with.

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Percentage increase, decrease and the original, continued

9. **After growing 20%, a seedling is 144 cm tall. How tall was it before?**

You have the answer after multiplying, so divide to get back.



10. **After growing 25%, a seedling is 62.5 cm tall. How tall was it before?**

You have the answer after multiplying, so divide to get back.

11. **After growing 10%, a seedling is 55 cm tall. How tall was it before?**

You have the answer after multiplying, so divide to get back.

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Quick check



One right answer each. Ring the letter. These are for seeing what has stuck, so do them without working anything out on paper.

1. **A cyclist rides 30 km in 1 hour. What is the average speed?**
   (A) 6 g/cm 3 (B) 15 km/h (C) 30 km/h (D) 10 km/h

2. **A plant is 60 cm tall and grows by 10%. How tall is it now?**
   (A) 710 mm (B) 66 cm (C) 108 g (D) 530 mm

3. **Write the ratio 10 : 4 in its simplest form.**
   (A) 5 : 2 (B) 8 : 5 (C) 8 : 7 (D) 7 : 3

4. **A 200 g pack is reduced by 50%. What does it weigh now?**
   (A) 210 cm (B) 100 g (C) 36 g (D) 30 pounds

5. **Write the ratio 63 : 27 in its simplest form.**
   (A) 8 : 5 (B) 8 : 7 (C) 5 : 2 (D) 7 : 3

6. **3 identical books cost 12 pounds. What do 6 cost?**
   (A) 15 pounds (B) 36 g (C) 24 pounds (D) 530 mm

7. **A 60 g pack is reduced by 40%. What does it weigh now?**
   (A) 800 mm (B) 530 mm (C) 36 g (D) 42 pounds

8. **A plant is 50 cm tall and grows by 30%. How tall is it now?**
   (A) 66 cm (B) 65 cm (C) 710 mm (D) 64 g

9. **7 identical books cost 21 pounds. What do 5 cost?**
   (A) 15 pounds (B) 36 g (C) 100 g (D) 210 cm

10. **Change 90 minutes into hours and minutes.**
    (A) 108 g (B) 3 h 30 min (C) 1 h 30 min (D) 30 pounds

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SAMPLE PAGES

You have read a few pages. The pack is longer.

What you are holding is a short sample, taken from different parts of the pack so that you can see how a week is planned and what a child is actually asked to do, before you decide.

The complete pack, and the rest of the academic materials, are on our website: schemes of work for a parent teaching at home, and practice packs for the skills children get stuck on.

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Islamic and Academic Education

Members of the homeschool community do not buy these. If you have joined the community, the pack for the term you are working on is given to you at no cost.

Our Islamic Education classes are free. These packs are part of what pays the teachers who teach them.