

Week 10

This week in a nutshell:

Many of the skills this week need a bit more fluidity of manipulation, so students may need extra time in order to feel confident.

Question 1: Multiplying and dividing fractions

Question 2: Percentage increase/decrease

Question 3: Linear equations (variable on both sides)

Question 4: Angles in parallel lines

Question 5: Surface area

Some of the questions for this week will involve more than mental calculation and more than one step. This is a great opportunity to discuss written methods with your students. Metacognition and justification become very important, especially with respect to the equations being solved.

This week's ideas for class discussion include:

Question 1: Multiplying and dividing fractions

- Can you explain why the method for dividing fractions works?

Question 2: Percentage increase/decrease

- Where do we see percentage changes, and why is it important to understand how they are used?

Question 3: Linear equations (variable on both sides)

- In what ways can you show your thought process when solving this type of equation? Why is this a helpful strategy?

Question 4: Angles in parallel lines

- Parallel lines are seen in many places; why do you think this is?
- How do you think we could derive the rules for working with parallel lines?

Question 5: Surface area

- Why might surface area be important to online businesses (in particular)?

Week 10: Day 1

1) Calculate and simplify:

a) $\frac{1}{2} \times \frac{1}{4}$

b) $\frac{3}{5} \times \frac{2}{3}$

2) What is 40...

a) Increased by 50%?

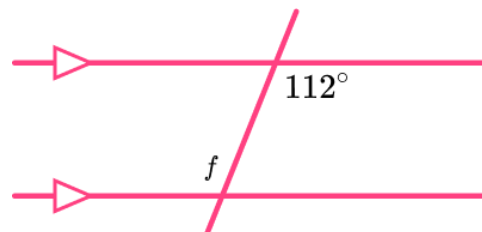
b) Decreased by 10%?

3) Solve:

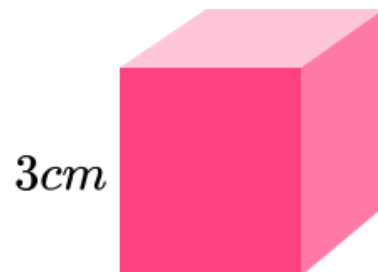
a) $2x + 3 = x + 11$

b) $7 + 4x = 12 - x$

4) What is the size of angle f ?
Give a reason for your answer.



5) A cube has an edge length of 3cm. What is its surface area?



Week 10: Day 1 Answers

1) Calculate and simplify:

a) $\frac{1}{2} \times \frac{1}{4} = \frac{1}{8}$

b) $\frac{3}{5} \times \frac{2}{3} = \frac{2}{5}$

2) What is 40...

a) Increased by 50%?
60

b) Decreased by 10%?
36

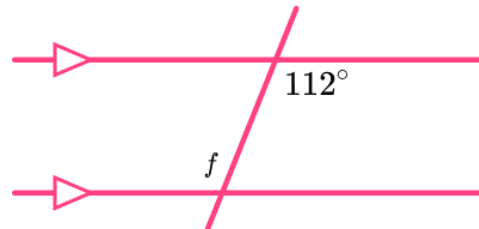
3) Solve:

a) $2x + 3 = x + 11$
 $x = 8$

b) $7 + 4x = 12 - x$
 $x = 1$

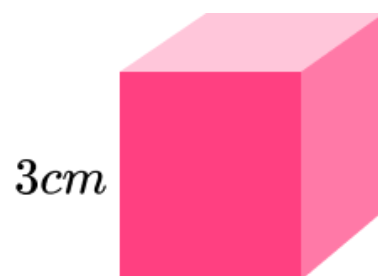
4) What is the size of angle f ?
Give a reason for your answer.

112° - Alternative angles are equal.



5) A cube has an edge length of 3cm. What is its surface area?

54cm^2



Week 10: Day 2

1) Calculate and simplify:

a) $\frac{1}{4} \times \frac{2}{3}$

b) $\frac{1}{2} \div \frac{2}{3}$

2) What is 60...

a) Increased by 5%?

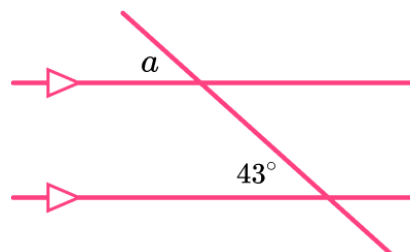
b) Decreased by 20%?

3) Solve:

a) $4x + 5 = x + 14$

b) $3 + 5x = 17 + x$

4) What is the size of angle a ?
Give a reason for your answer.



5) A cube has a surface area of 96cm^2 . What is the area of one face of this cube?



Week 10: Day 2 Answers

1) Calculate and simplify:

a) $\frac{1}{4} \times \frac{2}{3} = \frac{1}{6}$

b) $\frac{1}{2} \div \frac{2}{3} = \frac{3}{4}$

2) What is 60...

a) Increased by 5%?
63

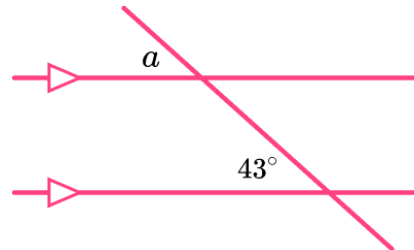
b) Decreased by 20%?
48

3) Solve:

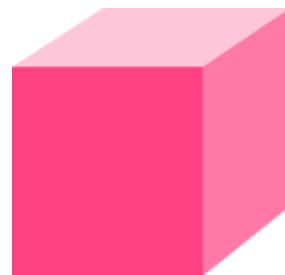
a) $4x + 5 = x + 14$
 $x = 3$

b) $3 + 5x = 17 + x$
 $x = 3.5$

4) What is the size of angle a ?
Give a reason for your answer.
 43° - Corresponding angles are equal.



5) A cube has a surface area of 96cm^2 . What is the area of one face of this cube?
 16cm^2



Week 9: Day 3

1) Calculate and simplify:

a) $\frac{4}{5} \times \frac{1}{3} \times \frac{1}{2}$

b) $\frac{2}{7} \div \frac{2}{5}$

2) What is 75...

a) Increased by 10%?

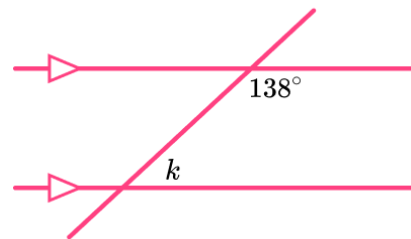
b) Decreased by 20%?

3) Solve:

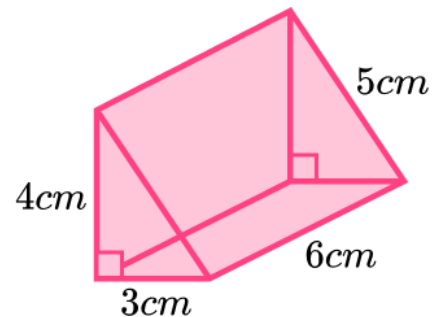
a) $2x - 3 = 4x + 19$

b) $8 - x = 23 - 4x$

4) What is the size of angle k ?
Give a reason for your answer.



5) Calculate the surface area of this triangular prism.



Week 10: Day 3 Answers

1) Calculate and simplify:

a) $\frac{4}{5} \times \frac{1}{3} \times \frac{1}{2} = \frac{2}{15}$

b) $\frac{2}{7} \div \frac{2}{5} = \frac{5}{7}$

2) What is 75...

a) Increased by 10%?
82.5

b) Decreased by 20%?
60

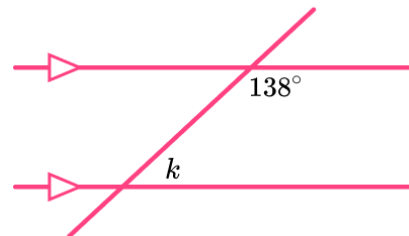
3) Solve:

a) $2x - 3 = 4x + 19$
 $x = -11$

b) $8 - x = 23 - 4x$
 $x = 5$

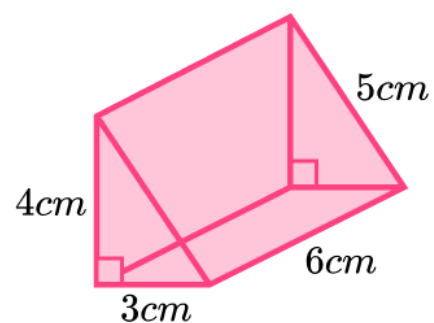
4) What is the size of angle k ?
Give a reason for your answer.

**42° - Co-interior angles
add to 180° .**



5) Calculate the surface area of this triangular prism.

84cm^2



Week 10: Day 4

1) Calculate and simplify:

a) $2\frac{1}{4} \times \frac{3}{4}$

b) $3\frac{1}{3} \div \frac{2}{3}$

2) What is 84...

a) Increased by 25%?

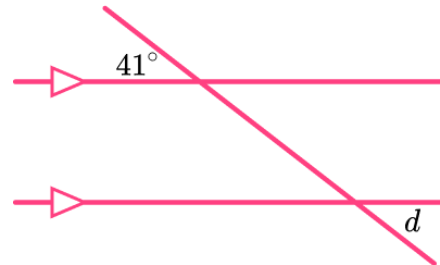
b) Decreased by 75%?

3) Solve:

a) $x - 2 = 7x - 5$

b) $9 - 3x = 12 - 6x$

4) What is the size of angle d ?
Give a reason for your answer.



5) A cube has a surface area of 150cm^2 . What is the length of one edge?



Week 10: Day 4 Answers

1) Calculate and simplify:

a) $2\frac{1}{4} \times \frac{3}{4} = \frac{27}{16}$

b) $3\frac{1}{3} \div \frac{2}{3} = 5$

2) What is 84...

a) Increased by 25%?
105

b) Decreased by 75%?
21

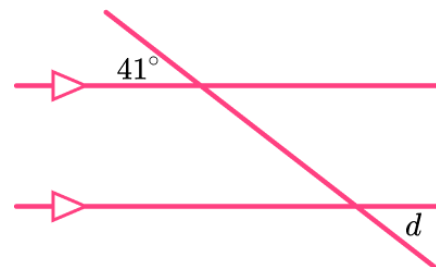
3) Solve:

a) $x - 2 = 7x - 5$
 $x = \frac{1}{2}$

b) $9 - 3x = 12 - 6x$
 $x = 1$

4) What is the size of angle d ?
Give a reason for your answer.

41° - Corresponding angles are equal and then vertically opposite angles are equal.



5) A cube has a surface area of 150cm^2 . What is the length of one edge?
5cm



Week 10: Day 5

1) Calculate and simplify:

a) $2\frac{1}{3} \times \frac{3}{7}$

b) $2\frac{2}{5} \div 1\frac{1}{2}$

2) What is 225...

a) Increased by 35%?

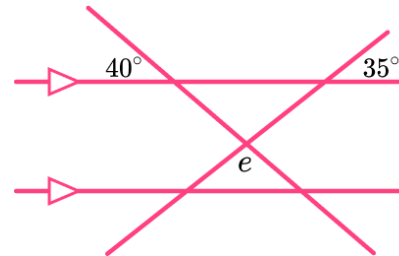
b) Decreased by 90%?

3) Solve:

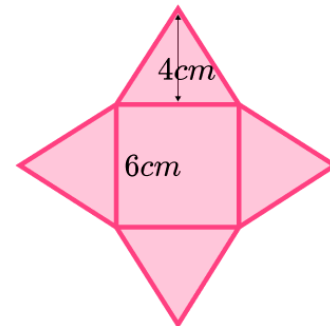
a) $4x + 3 = x + 3$

b) $17 + 4x = 15 - x$

4) What is the size of angle e ?
Explain your answer.



5) Given this net of a square based pyramid, work out its surface area.



Week 10: Day 5 Answers

1) Calculate and simplify:

a) $2\frac{1}{3} \times \frac{3}{7} = 1$

b) $2\frac{2}{5} \div 1\frac{1}{2} = \frac{8}{5}$

2) What is 225...

a) Increased by 35%?
303.75

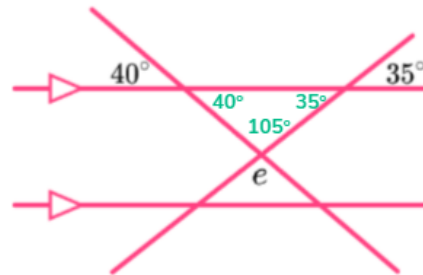
b) Decreased by 90%?
22.5

3) Solve:

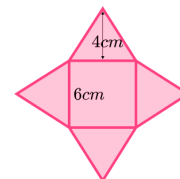
a) $4x + 3 = x + 3$
 $x = 0$

b) $17 + 4x = 15 - x$
 $x = -\frac{2}{5}$

4) What is the size of angle e ?
Explain your answer.
 105° - Vertically opposite angles are equal and angles in a triangle add to 180° .



5) Given this net of a square based pyramid, work out its surface area.
 84cm^2



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