

## Week 10

### **This week in a nutshell:**

Week 4 revisits skills and topics that are more technical in nature. For the questions on index laws, students could be given a brief refresher beforehand. Self checking should be encouraged for the questions on factorising quadratics. The use of different methods for dealing with angles in polygons could be used for interesting revision.

**Question 1:** Index laws

**Question 2:** Fractions, decimals and percentages

**Question 3:** Factorising quadratics

**Question 4:** Angles in polygons

**Question 5:** Circles

There are no suggestions for discussion this half term. As the topics are revision of previously covered material, any conversations should be used to deal with remaining difficulties or misconceptions that arise during the week.

## Week 10: Day 1

1) Work out:

a)  $3^2$

b)  $2^5$

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2) Write  $\frac{1}{2}$  as:

a) a decimal

b) a percentage

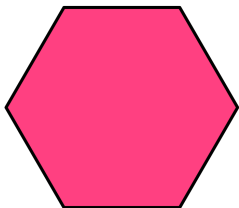
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3) Factorise

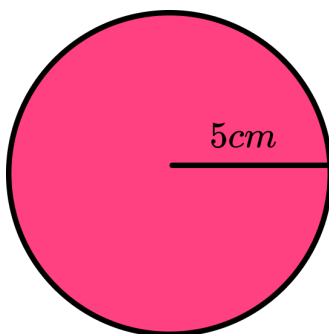
$$x^2 + 7x$$

---

4) Determine the size of one interior angle in a regular hexagon.



5) Calculate the circumference of the circle.



## Week 10: Day 1 Answers

1) Work out:

a)  $3^2$  9

b)  $2^5$  32

2) Write  $\frac{1}{2}$  as:

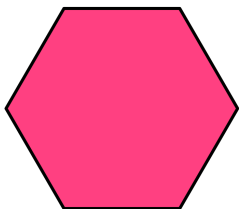
a) a decimal 0.5

b) a percentage 50%

3) Factorise

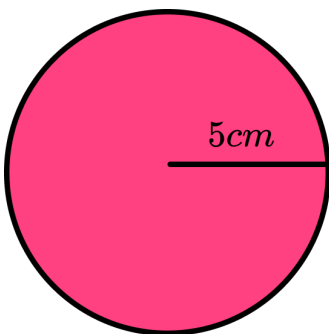
$$x^2 + 7x \quad x(x + 7)$$

4) Determine the size of one interior angle in a regular hexagon.



120°

5) Calculate the circumference of the circle.



$10\pi$  or 31.42cm (2dp)

## Week 10: Day 2

1) Simplify:

a)  $a^3 \times a^4$

b)  $b^7 \div b^3$

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2) Write 25% as:

a) a fraction

b) a decimal

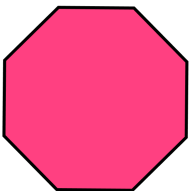
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3) Factorise

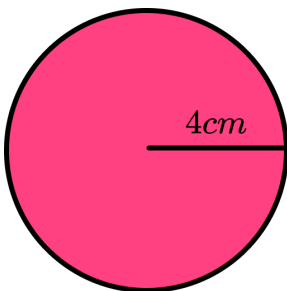
$$x^2 + 6x + 8$$

---

4) Work out the size of one exterior angle in a regular octagon.



5) Calculate the area of the circle.



## Week 10: Day 2 Answers

1) Simplify:

a)  $a^3 \times a^4$   $a^7$

b)  $b^7 \div b^3$   $b^4$

2) Write 25% as:

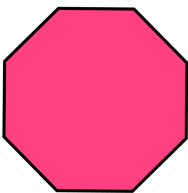
a) a fraction  $\frac{1}{3}$

b) a decimal  $0.25$

3) Factorise

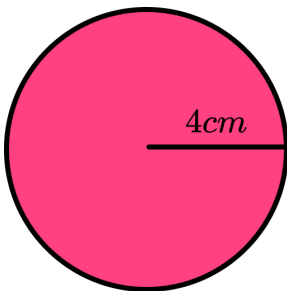
$$x^2 + 6x + 8 \quad (x + 2)(x + 4)$$

4) Work out the size of one exterior angle in a regular octagon.



$45^\circ$

5) Calculate the area of the circle.  $16\pi$  or  $50.27\text{cm}^2$  (2dp)



## Week 10: Day 3

1) Simplify:

a)  $(\sqrt{7})^2$

b)  $(m^3)^2$

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2) Write 0.3 as:

a) a percentage

b) a fraction

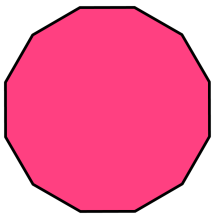
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3) Factorise

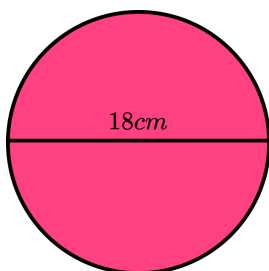
$$x^2 + 3x - 10$$

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4) Work out the difference in size between the interior and exterior angles of a regular dodecagon.



5) Calculate the area of the circle.



## Week 10: Day 3 Answers

1) Simplify:

a)  $(\sqrt{7})^2$  **7**

b)  $(m^3)^2$   **$m^6$**

2) Write 0.3 as:

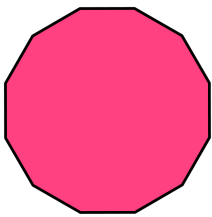
a) a percentage **30%**

b) a fraction  $\frac{3}{10}$

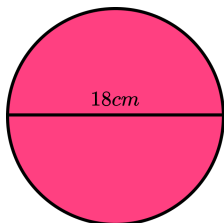
3) Factorise

$$x^2 + 3x - 10 \quad \mathbf{(x + 5)(x - 2)}$$

4) Work out the difference in size between the interior and exterior angles of a regular dodecagon.  **$120^\circ$**



5) Calculate the area of the circle.  **$81\pi$  or  $254.47\text{cm}^2$  (2dp)**



## Week 10: Day 4

1) Simplify:

a)  $(3n^2)^3$

b)  $3c^2 + 5c^2$

2) Write in ascending order:

$0.45$ ,  $44\%$ ,  $\frac{4}{5}$ ,  $\frac{4}{9}$ ,  $0.4$

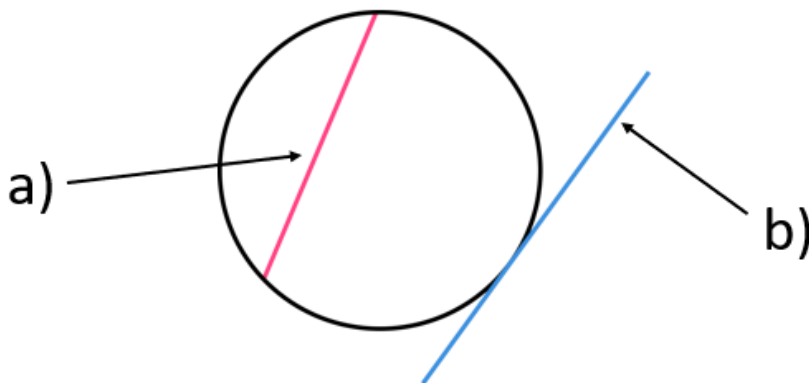
3) Factorise

$x^2 - 8x + 16$

4) A regular polygon has an interior angle that is  $162^\circ$ .

How many sides does this polygon have?

5) State the mathematical names for the (a) red line and (b) blue line.



## Week 10: Day 4 Answers

1) Simplify:

a)  $(3n^2)^3$   $27n^6$

b)  $3c^2 + 5c^2$   $8c^2$

2) Write in ascending order:

$0.45, 44\%, \frac{4}{5}, \frac{4}{9}, 0.4$   $0.4, 44\%, \frac{4}{9}, 0.45, \frac{4}{5}$

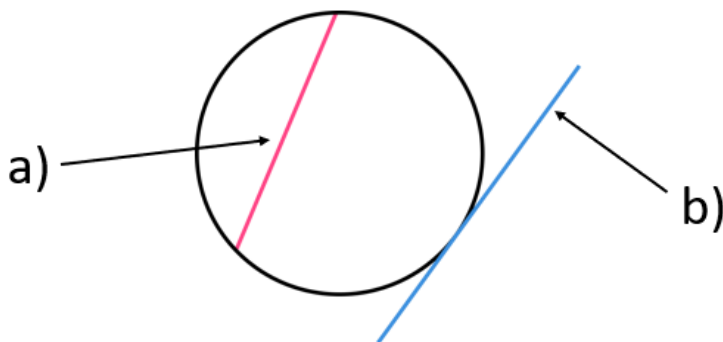
3) Factorise

$x^2 - 8x + 16$   $(x - 4)^2$

4) A regular polygon has an interior angle that is  $162^\circ$ .

How many sides does this polygon have?  $20$

5) State the mathematical names for the (a) red line and (b) blue line.



a) chord b) tangent

## Week 10: Day 5

1) Evaluate:

a)  $(\sqrt[3]{8})^2$

b)  $(\sqrt{81})^{\frac{1}{2}}$

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2) Write in ascending order:

$$0.6, 66\%, \frac{2}{3}, \frac{61}{100}, 0.62$$

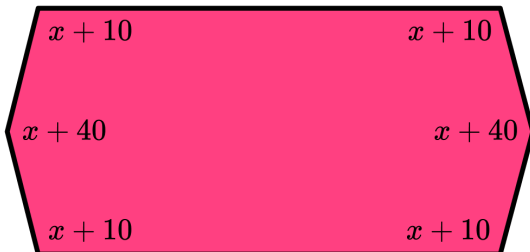
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3) Factorise

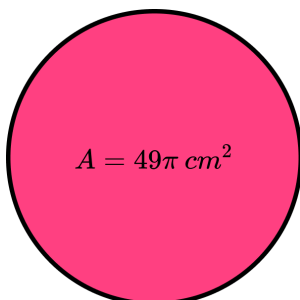
$$x^2 - 121$$

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4) Work out the value of  $x$ .



5) Work out the circumference of this circle, giving your answer in terms of  $\pi$ .



## Week 10: Day 5 Answers

1) Evaluate:

a)  $(\sqrt[3]{8})^2$  **4**

b)  $(\sqrt{81})^{\frac{1}{2}}$  **3**

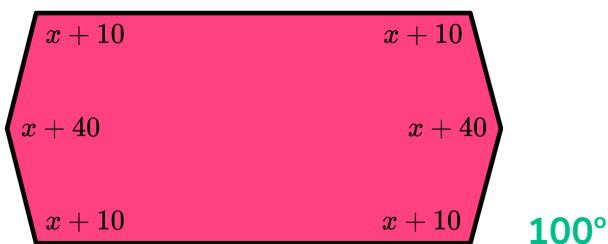
2) Write in ascending order:

$0.6, 66\%, \frac{2}{3}, \frac{61}{100}, 0.62$        **$0.6, \frac{61}{100}, 0.62, 66\%, \frac{2}{3}$**

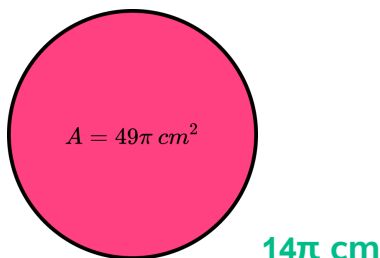
3) Factorise

$x^2 - 121$      **$(x + 11)(x - 11)$**

4) Work out the value of  $x$ .



5) Work out the circumference of this circle, giving your answer in terms of  $\pi$ .



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