# MATHEMATICS

## Stage 4

**Measurement and Space, Angle Relationships**

**Angle Basics**

**Solving Problems**

**Teacher:** Chi Binh Le

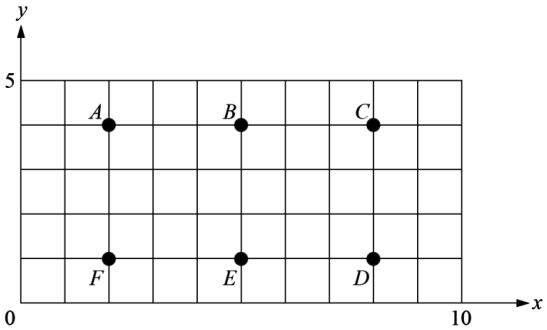
**Exam Equivalent Time:** 180 minutes *(based on allocation ~1.25 min/mark)*

norWEST CHRISTIAN COLLEGE
STRENGTH OF PURPOSE

## Questions

1. E Angle Basics (258326) Core

Brianna plotted the points $A - F$ on a grid paper, as shown below.




She then joined some of the points together with lines.

Which of these pairs of lines are parallel?

A. $AF$ and $AC$

B. $AD$ and $CF$

C. $AE$ and $BD$

D. $AD$ and $BD$

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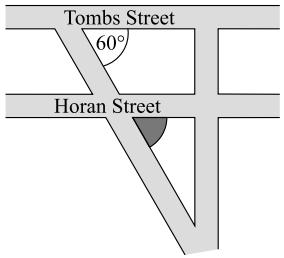
2. D Angle Basics (258276) Core

Craig is a town planner and needs to know the angles that streets make with each other.




He knows that Tombs Street and Horan Street are parallel.

What is the size of the shaded angle on the map?

A. 60°

B. 45°

C. 30°

D. 120°

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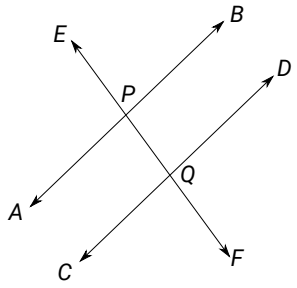
3. C Angle Basics (258285) Core

Lines $AB$ and $CD$ are parallel.

Line $EF$ intersects lines $AB$ and $CD$ as shown.




Which pair of angles are equal?

A. $\angle EPB$ and $\angle EPA$

B. $\angle CQE$ and $\angle APF$

C. $\angle FQD$ and $\angle FQC$

D. $\angle CQE$ and $\angle FPB$

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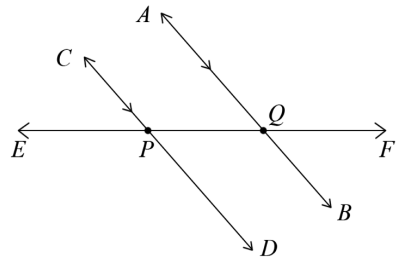
4. C Angle Basics (258290) Core

Lines $AB$ and $CD$ are parallel.

Line $EF$ intersects lines $AB$ and $CD$ as shown.




Which pair of angles are equal?

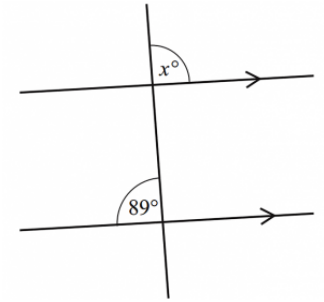
A. $\angle FQA$ and $\angle FQB$

B. $\angle CPQ$ and $\angle AQE$

C. $\angle CPQ$ and $\angle PQB$

D. $\angle DPE$ and $\angle FPD$

5. C Angle Basics (258616) Core




The value of $x$ in the diagram above is

A. 89

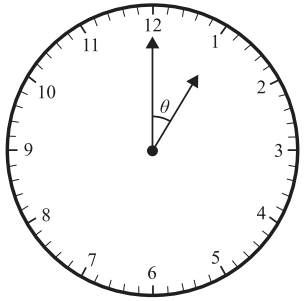
B. 90

C. 91

D. 101

6. B Solving Problems (258621) Core

A clock displayed the time one o'clock, as shown on the diagram below.




The angle, $\theta$, between the small hand and the large hand is

A. $5^\circ$

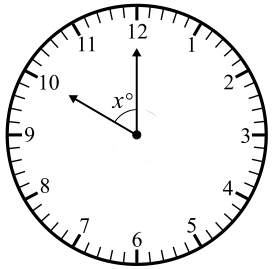
B. $12^\circ$

C. $30^\circ$

D. $36^\circ$

7. B Solving Problems (258855) Core

A clock displayed the time ten o'clock, as shown on the diagram below.




The angle, $x^\circ$, between the small hand and the large hand is

A. $30^\circ$

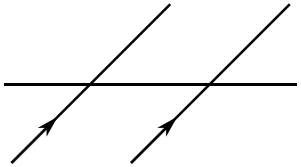
B. $36^\circ$

C. $52^\circ$

D. $60^\circ$

8. D Angle Basics (258184) Core

The diagram below shows a transversal intersecting two parallel lines.



On the diagram, identify

i. One pair of alternate angles using a tick (✓) to identify the angles. *(1 mark)*

ii. One pair of vertically opposite angles using a dot ( • ) to identify the angles. *(1 mark)*

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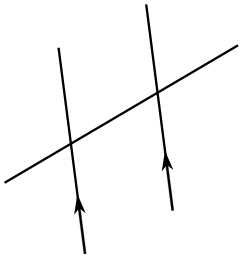
9. D Angle Basics (258194) Core

The diagram below shows a transversal intersecting two parallel lines.



On the diagram, identify

i. One pair of vertically opposite angles using the label "×" to identify the angles. *(1 mark)*

ii. One pair of corresponding angles using a dot ( • ) to identify the angles. *(1 mark)*

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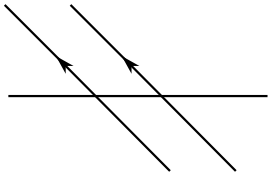
10. D Angle Basics (258174) Core

The diagram below shows a transversal intersecting two parallel lines.

On the diagram, label the following:



i. One pair of corresponding angles using the label "×" to identify the angles *(1 mark)*

ii. One pair of cointerior angles using a dot ( • ) to identify the angles *(1 mark)*

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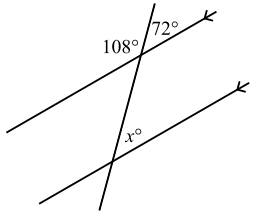
11. D Angle Basics (258694) Core

The diagram below shows two parallel lines cut by a transversal.




Find the value of $x°$, giving reasons. *(1 mark)*

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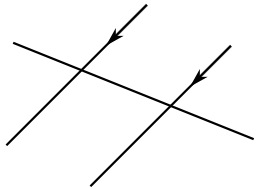
12. D Angle Basics (258192) Core

The diagram below shows a transversal intersecting two parallel lines.



On the diagram, label the following:

i. One pair of cointerior angles using a tick (✓) to identify the angles. *(1 mark)*

ii. One pair of alternate angles using a dot ( • ) to identify the angles. *(1 mark)*

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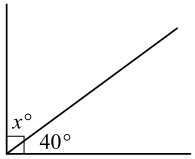
13. D Angle Basics (258758) Core

The diagram below shows a right angle.




Calculate, giving reasons, the value of $x°$. *(1 mark)*

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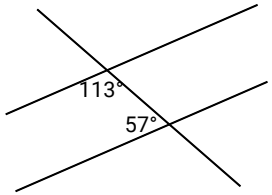
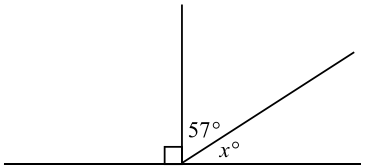
14. D Angle Basics (258688) Core

Determine, giving reasons, if the two lines cut by the transversal in the diagram below are parallel. *(1 mark)*

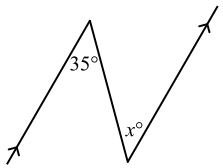



15. D Angle Basics (258753) Core




Calculate, giving reasons, the value of $x°$. *(1 mark)*

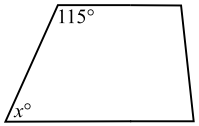
16. D Angle Basics (258712) Core




Find the value of $x°$, giving reasons. *(1 mark)*

17. C Angle Basics (258714) Core

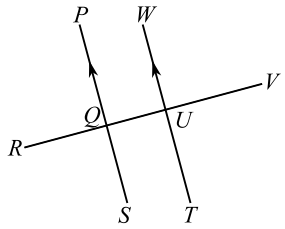
A trapezium is pictured below.




Find the value of $x°$, giving reasons. *(2 marks)*

18. C Angle Basics (258219) Core

The diagram below shows two parallel lines intersected by transversal $RV$.

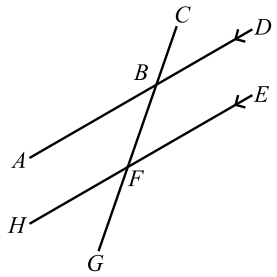



i. Name the angle that is vertically opposite $\angle TUR$. *(1 mark)*

ii. Name the angle that is corresponding to $\angle PQV$. *(1 mark)*

19. C Angle Basics (258271) Core

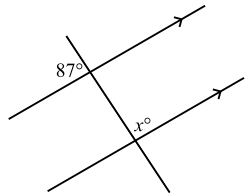
The diagram below shows two parallel lines intersected by transversal $CG$.




i. Name the angle that is vertically opposite to $\angle CBA$. *(1 mark)*

ii. Name the angle that is cointerior to $\angle GBD$. *(1 mark)*

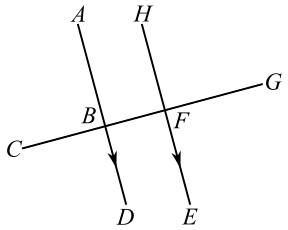
20. C Angle Basics (258706) Core




Find the value of $x°$, giving reasons. *(2 marks)*

21. C Angle Basics (258263) Core

The diagram below shows two parallel lines intersected by transversal $CG$.




i. Name two angles that are complementary to $\angle DBF$. *(2 marks)*

ii. Name the angle that is corresponding to $\angle HFG$. *(1 mark)*

iii. Name the angle that is alternate to $\angle CFH$. *(1 mark)*

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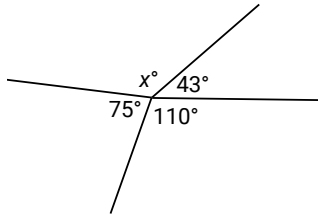
22. C Angle Basics (258786) Core




Calculate the value of $x°$, giving reasons for your answer. *(2 marks)*

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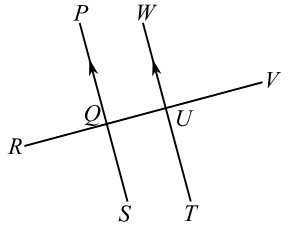
23. C Angle Basics (258233) Core

The diagram below shows two parallel lines intersected by transversal $RV$.




i. Name the angle that is alternate to $\angle RUW$. *(1 mark)*

ii. Name the angle that is vertically opposite to $\angle WUV$. *(1 mark)*

iii. Name the angle that is cointerior to $\angle QUT$. *(1 mark)*

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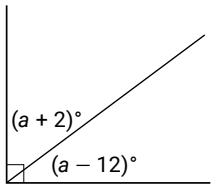
24. C Angle Basics (258778) Core

The diagram below shows a right angle.




Calculate, giving reasons, the value of $x°$. *(1 mark)*

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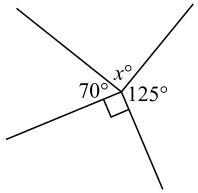
25. C Angle Basics (258783) Core




Calculate the value of $x°$, giving reasons for your answer. *(2 marks)*

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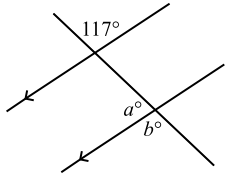
26. C Angle Basics (258701) Core

The diagram below shows two parallel lines cut by a transversal.




Find the value of $a°$ and $b°$, giving reasons. *(2 marks)*

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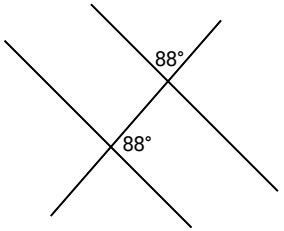
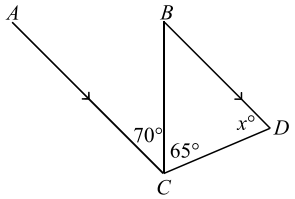
27. C Angle Basics (258672) Core

Determine, giving reasons, if the two lines cut by the transversal in the diagram below are parallel. *(2 marks)*




28. C Solving Problems (259886) Core

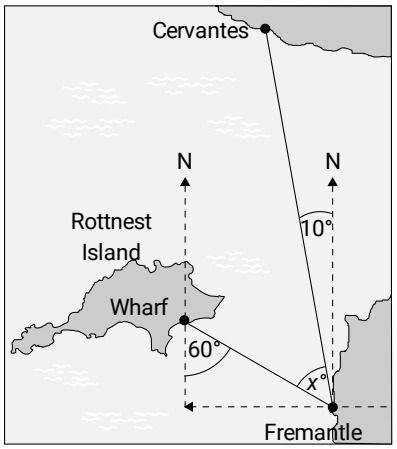
In the diagram below, find the value of $x°$, giving reasons for your answer. *(2 marks)*




29. C Solving Problems (258280) Core

Two boats leave from Fremantle. One sails to the Wharf at Rottnest Island and the other sails to Cervantes.

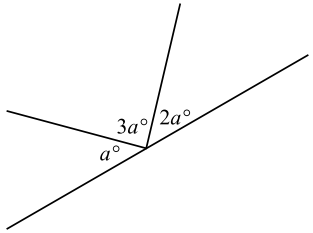
The direction each boat sailed is shown in the map below.




Determine the value of $x°$ on the map. *(2 marks)*

30. C Angle Basics (258762) Core

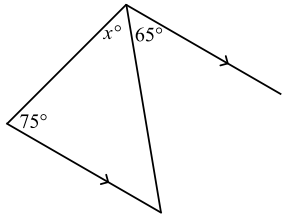
A straight line, as shown below, is split into three angles.




Calculate the value of $a°$, giving reasons. *(2 marks)*

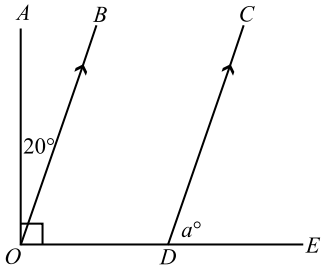
31. C Solving Problems (259831) Core

Find the value of $x°$ in the diagram below, giving reasons for your answer. *(2 marks)*




32. C Solving Problems (259841) Core

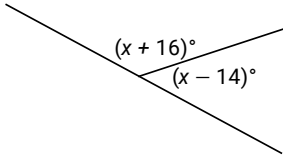
In the diagram below, two parallel lines $OB$ and $DC$ cut the horizontal transversal $OE$, and $OA$ is perpendicular to $OE$.




Find the value of $a°$, giving reasons for your answer. *(2 marks)*

33. C Angle Basics (258766) Core

A straight line, as shown below, is split into two angles.




Calculate the value of $x°$, giving reasons. *(2 marks)*

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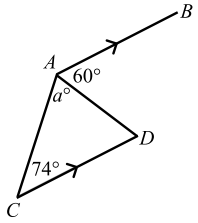
34. C Solving Problems (259894) Core

In the diagram below, find the value of $a°$, giving reasons for your answer. *(2 marks)*

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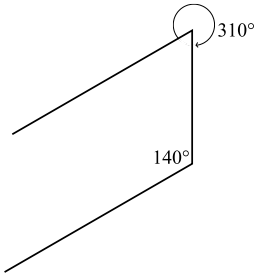
35. C Solving Problems (259834) Core

Determine if two lines in the diagram below are parallel, giving reasons for your answer. *(2 marks)*

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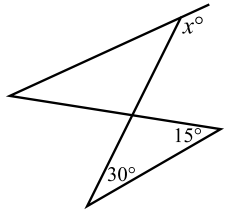
36. C Angle Basics (258747) Core

The diagram below has one pair of parallel lines.




Calculate, giving reasons, the value of $x°$. *(2 marks)*

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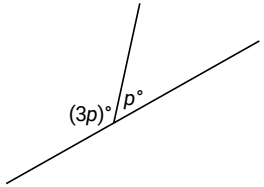
37. C Angle Basics (258770) Core

A straight line, as shown below, is split into two angles.




Calculate the value of both angles. *(3 marks)*

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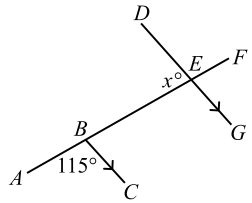
38. C Solving Problems (259942) Core

In the diagram below, $DG$ is parallel to $BC$, and $\angle ABC = 115°$.




Find the value of $x°$, giving reasons for your answer. *(2 marks)*

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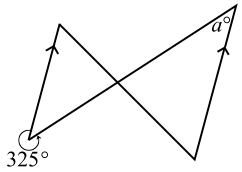
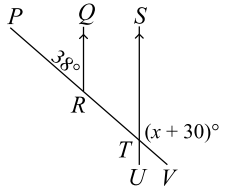
39. C Solving Problems (259873) Core

In the diagram below, find the value of $a°$, giving reasons for your answer. *(2 marks)*




40. C Solving Problems (259927) Core

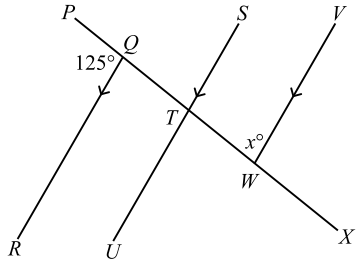
In the diagram below, $QR$ is parallel to $SU$.




Find the value of $x°$, giving reasons for your answer. *(2 marks)*

41. C Solving Problems (259854) Core

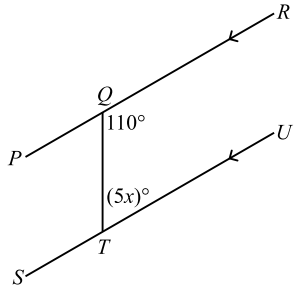
In the diagram below, $QR$ is parallel to lines $SU$ and $VW$.




Find the value of $x°$, giving reasons for your answer. *(3 marks)*

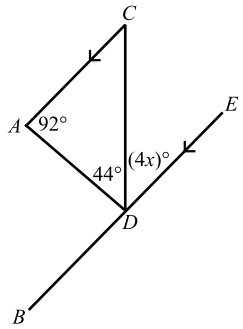
42. C Solving Problems (259188) Core

Find the value of $x°$ in the diagram, giving reasons for your answer. *(2 marks)*



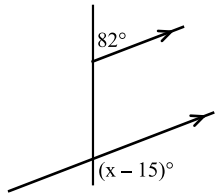

43. C Solving Problems (259170) Core

Find the value of $x°$ in the diagram, giving reasons for your answer. *(2 marks)*



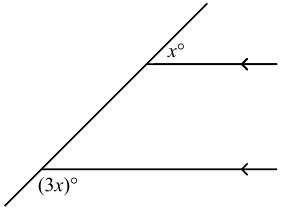

44. C Solving Problems (259140) Core

Find the value of $x$ in the diagram, giving reasons for your answer. *(2 marks)*



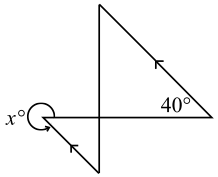
45. B Solving Problems (259179) Core

Find the value of $x°$ in the diagram, giving reasons for your answer. *(2 marks)*



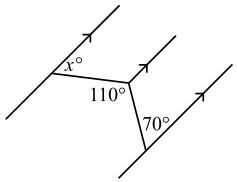

46. B Solving Problems (259878) Core

In the diagram below, find the value of $x°$, giving reasons for your answer. *(2 marks)*



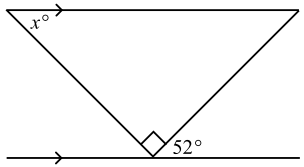

47. B Solving Problems (259906) Core

In the diagram below, find the value of $x°$, giving reasons for your answer. *(2 marks)*



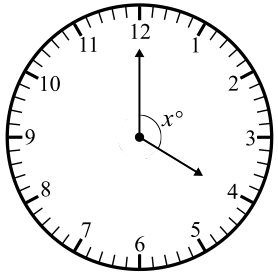

48. B Solving Problems (259865) Core

In the diagram below, find the value of $x°$, giving reasons for your answer. *(2 marks)*




49. B Solving Problems (258849) Core

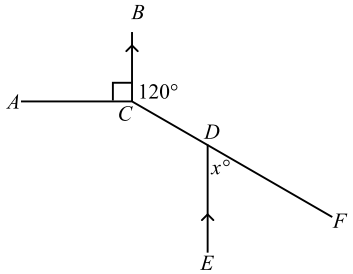
A clock displayed the time four o'clock, as shown on the diagram below.




Calculate the angle, $x°$, between the small hand and the large hand. *(2 marks)*

50. B Solving Problems (259849) Core

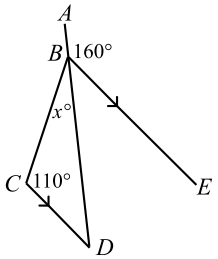
In the diagram below, $BC$ is parallel to $DE$ and $\angle ACB$ is a right-angle.




Find the value of $x°$, giving reasons for your answer. *(3 marks)*

51. B Solving Problems (259934) Core

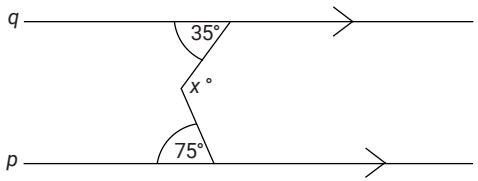
In the diagram below, $BE$ is parallel to $CD$, and $\angle ABE = 160°$.




Find the value of $x°$, giving reasons for your answer. *(2 marks)*

52. B Solving Problems (258298) Core

In the figure below, the lines $p$ and $q$ are parallel.

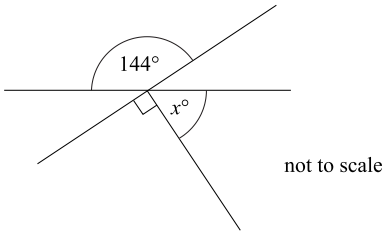



not to sca

Determine the value of $x°$. *(3 marks)*

---

53. B Solving Problems (260262) Core



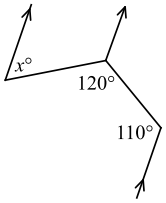

not to scale

What is the value of $x°$ in this diagram? *(2 marks)*

---

54. B+ Solving Problems (259134) Core

Find the value of $x°$ in the diagram, giving reasons for your answer. *(3 marks)*

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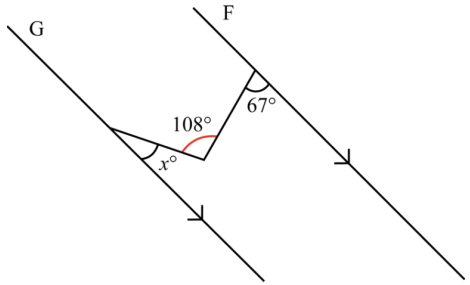
55. B+ Solving Problems (258294) Core

In the figure below, the lines $G$ and $F$ are parallel.




Determine the value of $x°$. *(3 marks)*

---

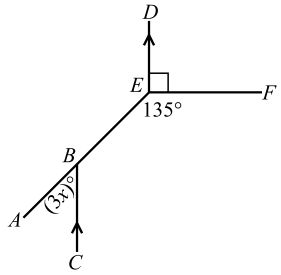
56. B+ Solving Problems (258619) Core

How many degrees does the **hour hand** of a clock turn in 60 minutes? *(2 marks)*

---

57. B+ Solving Problems (259174) Core

Find the value of $x°$ in the diagram, giving reasons for your answer. *(3 marks)*

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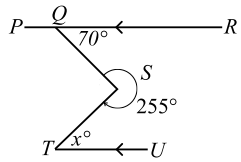
58. A Solving Problems (259923) Core

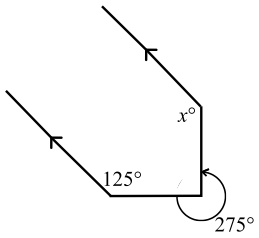
In the diagram below, $PR$ is parallel to $TU$ and reflex $\angle QST = 255°$




Find the value of $x°$, giving reasons for your answer. *(3 marks)*

59. A Solving Problems (259897) Core

In the diagram below, find the value of $x°$, giving reasons for your answer. *(3 marks)*



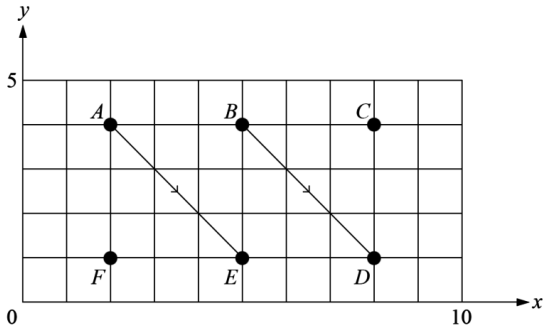

60. A Solving Problems (258844) Core

How many degrees does the **minute hand** of a clock turn in 35 minutes? *(2 marks)*



## Worked Solutions

1. E Angle Basics (258326) Core




$AE$ and $BD$ are parallel.

$\Rightarrow C$

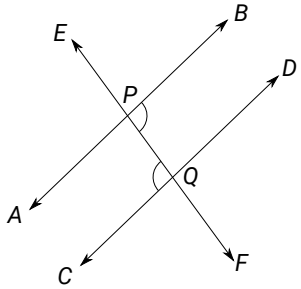
2. D Angle Basics (258276) Core

Corresponding angles are equal.

$\therefore$ Shaded angle $= 60°$

$\Rightarrow A$

3. C Angle Basics (258285) Core




$\angle CQE = \angle FPB$ (alternate angles)

$\Rightarrow D$

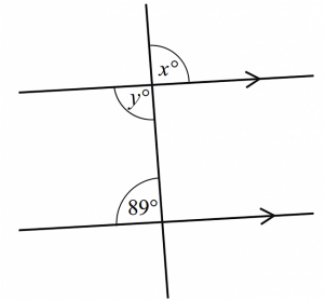
4. C Angle Basics (258290) Core

$\angle CPQ$ and $\angle PQB$ (alternate angles)

$\Rightarrow C$

Worked Solutions

5. C Angle Basics (258616) Core




$y° = 180 - 89$ (cointerior angles)

$= 91°$

$\therefore x° = 91°$ (vertically opposite angles)

$\Rightarrow C$

---

6. B Solving Problems (258621) Core

There are $360°$ about a point.

$\therefore \theta = \dfrac{360}{12}$

$= 30°$

$\Rightarrow C$

---

7. B Solving Problems (258855) Core

There are $360°$ about a point.

$x° = \dfrac{2}{12} \times 360 = 60°$

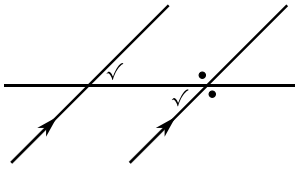
$\Rightarrow D$

---

8. D Angle Basics (258184) Core

i. & ii.

One solution (of many possibilities):



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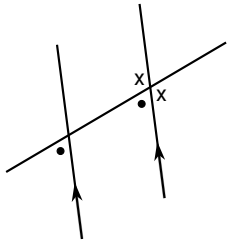
9. D Angle Basics (258194) Core

i. & ii.

One solution (of many possibilities):

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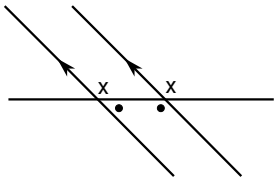
10. D Angle Basics (258174) Core

i. & ii.

One solution (of many possibilities):




---

11. D Angle Basics (258694) Core

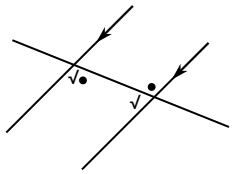
$x = 72°$ (corresponding angles)

---

12. D Angle Basics (258192) Core

i. & ii.

One solution (of many possibilities):



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13. D Angle Basics (258758) Core

Right angles $= 90°$

$x° = 90 - 40 = 50°$ (complementary angles)

14. D Angle Basics (258688) Core

Cointerior angles sum to $180^\circ$, and
$113 + 57 = 170^\circ \neq 180^\circ$
$\therefore$ Lines are not parallel.

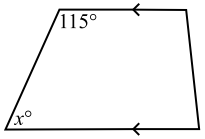
15. D Angle Basics (258753) Core

Straight line has adjacent right angles.
$x^\circ = 90 - 57 = 33^\circ$ (complementary angles)

16. D Angle Basics (258712) Core

$x^\circ = 35^\circ$ (alternate angles)

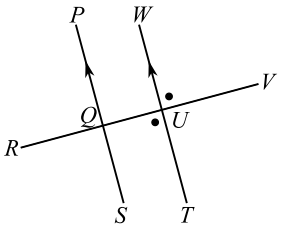
17. C Angle Basics (258714) Core



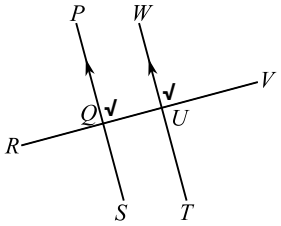

A trapezium has one pair of parallel sides.
$x^\circ = 180 - 115 = 65^\circ$ (cointerior angles)

18. C Angle Basics (258219) Core

i. $\angle WUV$

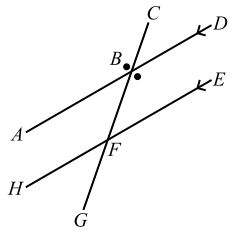



ii. $\angle WUV$

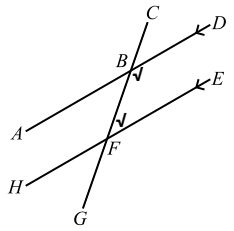



19. C Angle Basics (258271) Core

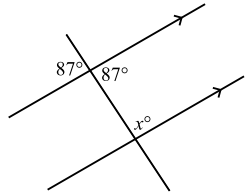
i. $\angle DBF$




ii. $\angle EFB$




20. C Angle Basics (258706) Core



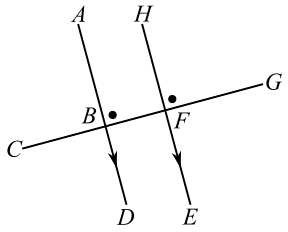

Vertically opposite angles $= 87^\circ$.
$x^\circ = 180 - 87 = 93^\circ$ (cointerior angles)

21. C Angle Basics (258263) Core

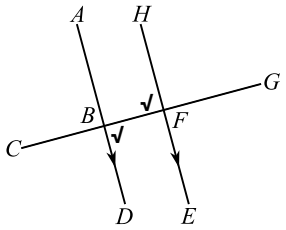
i. Complementary angles sum to $180^\circ$.

Correct answers include two of:
$\angle DBC$, $\angle EFB$, $\angle GFH$, or $\angle GBA$.

ii. $\angle ABF$




iii. $\angle DBF$



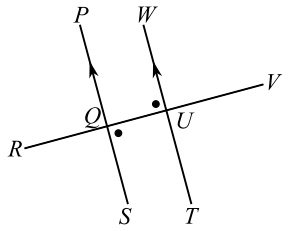

22. C Angle Basics (258786) Core

Sum of angles about a point $= 360^\circ$

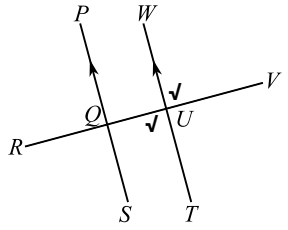
$$x^\circ = 360 - (75 + 110 + 43)$$
$$= 132^\circ$$

23. C Angle Basics (258233) Core

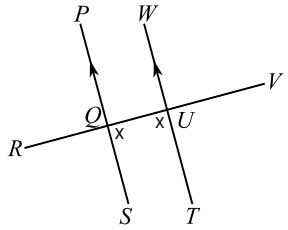
i. $\angle SQU$ or $\angle SQV$




ii. $\angle TUR$




iii. $\angle SQU$




24. C Angle Basics (258778) Core

Right angles $= 90^\circ$

$$a + 2 + a - 12 = 90 \text{ (complementary angles)}$$
$$2a - 10 = 90$$
$$a^\circ = \frac{100}{2}$$
$$= 50^\circ$$

25. C Angle Basics (258783) Core

Sum of angles about a point $= 360°$

$$x° = 360 - (70 + 90 + 125)$$
$$= 75°$$

26. C Angle Basics (258701) Core

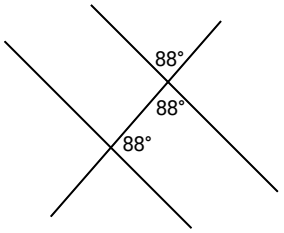
One strategy:

Vertically opposite angles are equal $(117°)$.

$a° = 180 - 117 = 63°$ (cointerior angles)

$b° = 180 - 63 = 117°$ ($180°$ in straight line)

27. C Angle Basics (258672) Core




Vertically opposite angles are equal (see diagram).

Cointerior angles sum to $180°$, and

$88 + 88 \neq 180°$

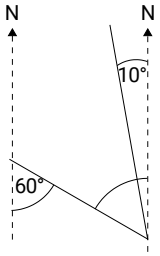
$\therefore$ Lines are not parallel.

28. C Solving Problems (259886) Core

Since cointerior angles sum to $180°$:

$$180° = x + 70 + 65$$
$$x° = 180 - 135$$
$$= 45°$$

29. C Solving Problems (258280) Core




Alternate angles are equal

$$60 = x + 10$$
$$\therefore x = 50°$$

30. C Angle Basics (258762) Core

Straight lines have $180°$ about a point.

$a + 3a + 2a = 180$ (supplementary angles)

$$a° = \frac{180}{6}$$
$$= 30°$$

31. C Solving Problems (259831) Core

Since cointerior angles sum to $180°$:

$$180 = x + 65 + 75$$
$$180 = x + 140$$
$$x° = 180 - 40$$
$$= 40°$$

32. C Solving Problems (259841) Core

$\angle BOE = 90 - 20 = 70°$ (complementary angles)

$a° = 70°$ (corresponding angles)

33. C Angle Basics (258766) Core

Straight lines have $180°$ about a point.

$x + 16 + x - 14 = 180$ (supplementary angles)

$2x + 2 = 180$

$x° = \frac{178}{2}$

$= 89°$

34. C Solving Problems (259894) Core

Since cointerior angles sum to $180°$:

$180° = a + 60 + 74$

$a° = 180 - 134$

$= 46°$

35. C Solving Problems (259834) Core

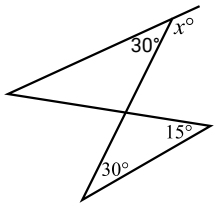
$\angle \text{unknown} = 360 - 310 = 50°$ ($360°$ about a point)

Since cointerior angles sum to $180°$:

$140 + 50 = 190° \neq 180°$

$\therefore$ Lines are not parallel.

36. C Angle Basics (258747) Core




Alternate angles are equal (see diagram).

Angles in a straight line sum to $180°$:

$x° = 180 - 30 = 150°$

37. C Angle Basics (258770) Core

Straight lines have $180°$ about a point.

$3p + p = 180$ (supplementary angles)

$p° = \frac{180}{4}$

$= 45°$

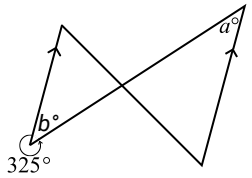
$\therefore$ Two angles: $p° = 45°, (3p)° = 3 \times 45 = 135°$

38. C Solving Problems (259942) Core

$\angle CBE = 180 - 115 = 65°$ ($180°$ in a straight line)

$x° = 65°$ (alternate angles)

39. C Solving Problems (259873) Core




$\angle b° = 360 - 325 = 35°$ ($360°$ about a point)

$\angle a° = 35°$ (alternate angles)

40. C Solving Problems (259927) Core

$\angle STP = 38°$ (corresponding angles)

$(x + 30)° = 180 - 38$ ($180°$ in straight line)

$x° = 142 - 30$

$= 112°$

41. C Solving Problems (259854) Core

$\angle UTQ = 125°$ (corresponding angles)

$\angle STX = 125°$ (vertically opposite angles)

$x° = 180 - 125 = 55°$ (cointerior angles)

42. C Solving Problems (259188) Core

$\angle RQT + \angle UTQ = 180$ (cointerior angles)

$110 + 5x = 180$

$5x = 180 - 110$

$x^\circ = \frac{70}{5}$

$= 14^\circ$

43. C Solving Problems (259170) Core

$\angle ADE + \angle DAC = 180^\circ$ (cointerior angles)

$\angle ADE = 180 - 92 = 88^\circ$

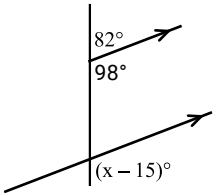
$44 + 4x = 88$

$4x = 44$

$x^\circ = \frac{44}{4}$

$= 11^\circ$

44. C Solving Problems (259140) Core



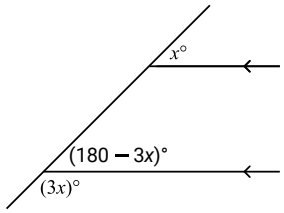

Supplementary angles sum to $180^\circ$ $(180 - 82 = 98^\circ)$

$x - 15 = 98$ (corresponding angles)

$x^\circ = 98 + 15$

$= 113^\circ$

45. B Solving Problems (259179) Core




Angle above $\angle(3x)^\circ = (180 - 3x)^\circ$ ($180^\circ$ in a straight line)

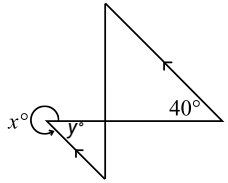
$180 - 3x = x$ (corresponding angles)

$4x = 180$

$x^\circ = \frac{180}{4}$

$= 45^\circ$

46. B Solving Problems (259878) Core

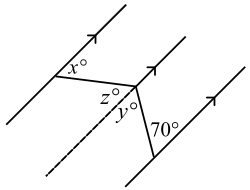



$\angle y^\circ = 40^\circ$ (alternate angles)

$\angle x^\circ = 360 = 40 = 320^\circ$ ($360^\circ$ about a point)

47. B Solving Problems (259906) Core

Extend middle parallel line:




$y^\circ = 70^\circ$ (alternate angles)

$x^\circ = z^\circ$ (alternate angles)

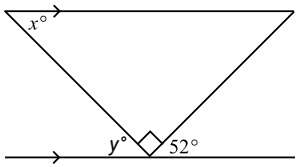
$(z + y)^\circ = 110^\circ$

$(x + y)^\circ = 110^\circ$

$x^\circ = 110 - 70$

$= 40^\circ$

48. B Solving Problems (259865) Core




$\angle y^\circ = 180 - (52 + 90) = 38^\circ$ (180° in straight line)

$\angle x^\circ = 38^\circ$ (alternate angles)

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49. B Solving Problems (258849) Core

There are 360° about a point.

$x^\circ = \frac{1}{3} \times 360 = 120^\circ$

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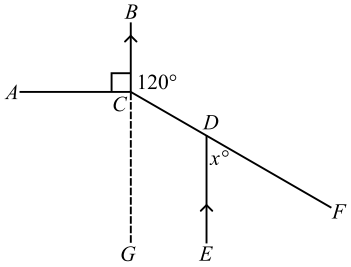
50. B Solving Problems (259849) Core

Extend line $BC$:




$\angle GCF = 180 - 120 = 60^\circ$ (180° in a straight line)

$x^\circ = 60^\circ$ (corresponding angles)

---

51. B Solving Problems (259934) Core

$\angle DBE = 180 - 160 = 20^\circ$ (180° in a straight line)

$180^\circ = x + 20 + 110$ (cointerior angles)

$x^\circ = 180 - 130$

$= 50^\circ$

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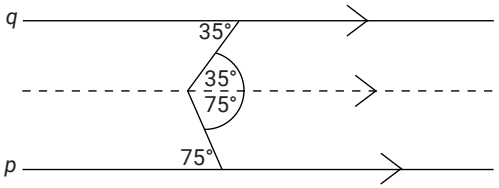
52. B Solving Problems (258298) Core




$x^\circ = 75 + 35$

$= 110^\circ$

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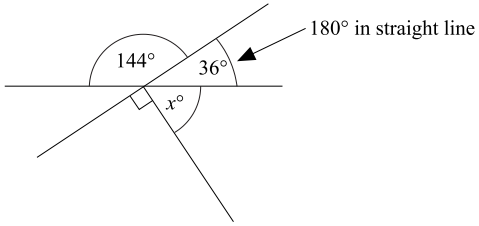
53. B Solving Problems (260262) Core




Adjacent angle to 144° $= 180 - 144 = 36^\circ$ (180° in straight line)

$x^\circ = 180 - (90 + 36) = 54^\circ$ (180° in straight line)

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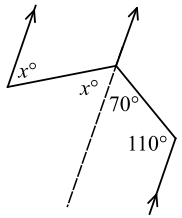
54. B+ Solving Problems (259134) Core

Extend the middle parallel line:




Alternate angles are equal ($x^\circ$).

Cointerior angles sum to 180° (110° and 70°)

$x^\circ = 120 - 70 = 50^\circ$

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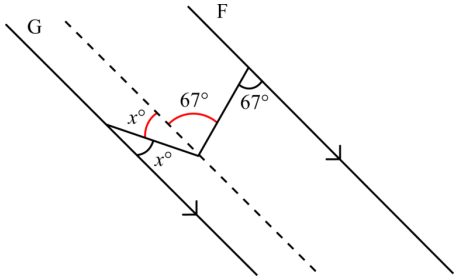
## 55. B+ Solving Problems (258294) Core




$x° = 108 - 67$
$= 41°$

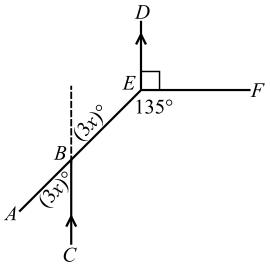
## 56. B+ Solving Problems (258619) Core

A clock's hour hand turns $360°$ in 12 hours.
$\therefore$ In 1 hour, it turns

$$\frac{1}{12} \times 360 = 30°$$

## 57. B+ Solving Problems (259174) Core

Extend the parallel line on the left:

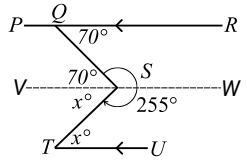



Angle opposite $\angle ABC = 3x°$ (vertically opposite)
$\angle DEB = 360 - (90 + 135) = 135°$ ($360°$ about a point)

$3x + 135 = 180$ (cointerior angles)
$3x = 180 - 135$
$x° = \frac{45}{3}$
$= 15°$

## 58. A Solving Problems (259923) Core

Add middle parallel line:

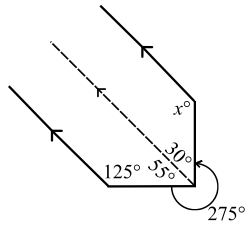



$\angle QST = 360 - 255 = 105°$ ($360°$ about a point)
$\angle VSQ = 70°$ (alternate angles)
$\angle VST = x°$ (alternate angles)

$x° = 105 - 70$
$= 35°$

## 59. A Solving Problems (259897) Core

Add parallel line:




Full interior angle $= 360 - 275 = 85°$ ($360°$ about a point)

Since cointerior angles sum to $180°$,
$\Rightarrow$ interior angle (1) $= 180 - 125 = 55°$
Since angles about a point sum to $360°$,
$\Rightarrow$ interior angle (2) $= 85 - 55 = 30°$

$x° = 180 - 30$ (cointerior angles)
$= 150°$

## 60. A Solving Problems (258844) Core

A clock's minute hand turns $360°$ in 60 minutes.
$\therefore$ In 35 minutes, it turns through:

$$\frac{35}{60} \times 360 = 210°$$