



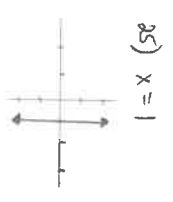
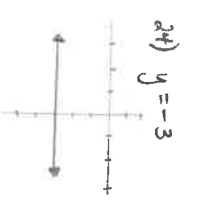
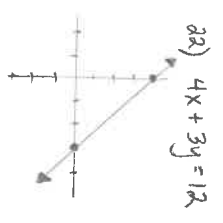
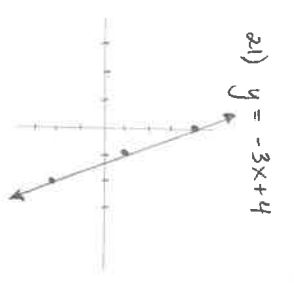
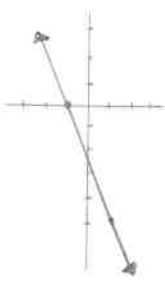
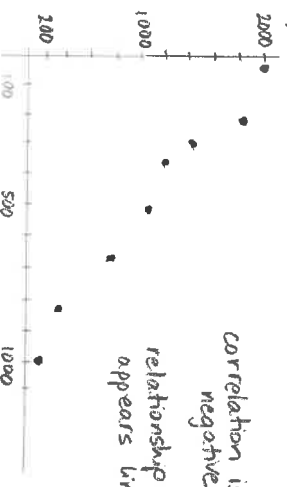
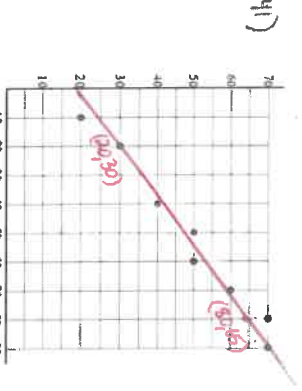



Integrated Math Challenge Exam Practice Answers

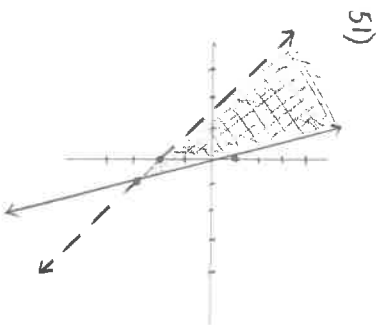
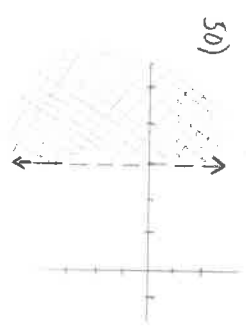
- 1) 6
- 2) 36
- 3) \emptyset
- 4) $X = -\frac{3}{7}$
- 5) $X = -\frac{13}{2}$
- 6) $X = 9$
- 7) $\{-3, 4\}$
- 8) $\{3\}$
- 9) $X < 2$
- 10) $X \leq -16$
- 11) $a = \frac{b+c}{-3}$
- 12) $X > -1$
- 13) 
- 14) 
- 15) 
- 16) $X < -5$ 
- 17) $\frac{4}{5}$
- 18) undefined
- 19) x-int: (4, 0)
y-int: (0, -2)
- 20) $y = \frac{2}{5}x - 1$

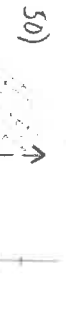
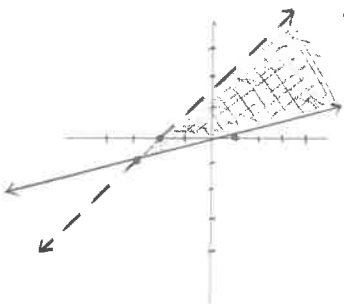


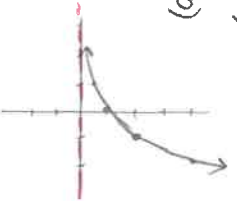
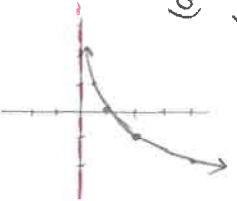
- 21) $y = -3x + 4$
- 22) $4x + 3y = 12$
- 23) $y - 2 = -\frac{1}{2}(x - 3)$
- 24) $y = -3$
- 25) $x = 1$
- 26) $\frac{1}{3}$
- 27) 4
- 28) $\frac{1}{5}$
- 29) $y = \frac{3}{2}x + 4$
- 30) $y = 2x - 3$

- 31) $y - 2 = -\frac{1}{2}(x + 3)$
- 32) A is a function
- 33) B is a function
- 34) A and B are functions
- 35) A is a function
- 36) domain: $\{-6, 0, 4, 5\}$
range: $\{-3, 1, 2, 5\}$
- 37) domain: \mathbb{R}
range: $y \leq 0$
- 38) domain: \mathbb{R}
range: \mathbb{R}
- 39) domain: $-7 \leq x \leq 5$
range: $-7 \leq y \leq 7$
- 40) 
correlation is negative
relationship appears linear
- 41) 
 $y - 30 = \frac{5}{12}(x - 20)$

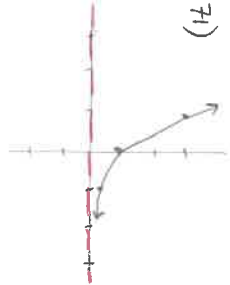
- 42) (2, -4)
- 43) (-2, 3)
- 44) (4, -3)
- 45) \emptyset
- 46) (6, 10)
- 47) (-8, -4)
- 48) infinite solutions
- 49) 



- 50) 
- 51) 
- 52) $\frac{5y^3}{3x}$
- 53) $\frac{3x^7}{y}$

- 54) $\frac{1}{9}$
- 55) $\frac{3}{x^2}$
- 56) $\frac{1}{9x^2}$
- 57) $27x^3y^6$
- 58) $\frac{9c^2}{4a^2b^2}$
- 59) $\frac{y^2}{x^3}$
- 60) x^{14}
- 61) 5
- 62) 2
- 63) 9
- 64) $50^{\frac{1}{2}}$
- 65) $5^{\frac{1}{3}}x^{\frac{2}{3}}$
- 66) $x = -\frac{1}{4}$
- 67) $x = -\frac{16}{5}$
- 68) exponential
- 69) 
- 70) 

71)



72) $y = 0$

73) $(0, 2)$

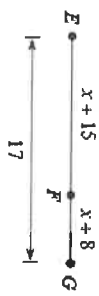
Foundations of Geometry

$x - 15 + x + 8 = 17$

$2x - 7 = 17$

$2x = 24$

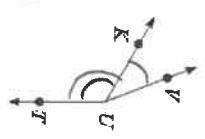
$x = 12$



74) Solve for x:

75) Find x if $m\angle TUV = 14x + 19$, $m\angle TUK = 12x$ and $m\angle KUV = 39^\circ$

76) Calculate the midpoint of $(-2, 7)$ and $(4, 15)$ $\left(\frac{-2+4}{2}, \frac{7+15}{2}\right) = (1, 11)$



$12x + 39^\circ = 14x + 19$

$20 = 2x$

$x = 10$

77) Calculate the length of the line segment with endpoints at $(3, -4)$ and $(-1, 8)$

78) What is the next digit in the sequence: 384, 192, 96, 48, $\boxed{24}$

$\sqrt{(3+1)^2 + (-4-8)^2} = \sqrt{16 + 144} = \sqrt{160} = \boxed{4\sqrt{10}}$

79) Complete the conclusion based on the Law of Contrapositive: If I go to school, then I take math. I don't take math. Therefore I don't go to school.

80) Complete the conclusion using the Law of Syllogism: If I go to school, then I take math. If I take math, then I have homework. If I go to school, then I have homework.

81) Given the statement: If a triangle has three congruent angles, then the triangle is equilateral, identify the hypothesis and the conclusion. hypothesis conclusion

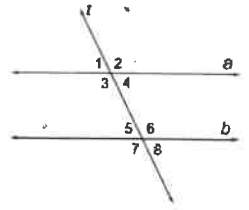
82) Given the statement: If a figure is a square, then it is a quadrilateral, give the converse, the inverse and the contrapositive statements and the truth value of each.

Converse: If a figure is a quadrilateral, then it is a square. $\boxed{\text{FALSE}}$
Inverse: If a figure is not a square, then it is not a quadrilateral. $\boxed{\text{FALSE}}$
Contrapositive: If a figure is not a quadrilateral, then it is not a square. $\boxed{\text{TRUE}}$

Parallel and Perpendicular Lines

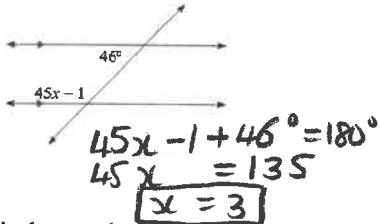
83) Identify the alternate interior, alternate exterior and consecutive interior angle pairs:

$\angle 3$ & $\angle 6$ $\angle 1$ & $\angle 8$ $\angle 3$ & $\angle 5$
 $\angle 4$ & $\angle 5$ $\angle 2$ & $\angle 7$ $\angle 4$ & $\angle 6$

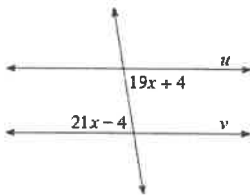


84) Find x:

cons. int.
L's



87) Find x so that line $u \parallel$ line v



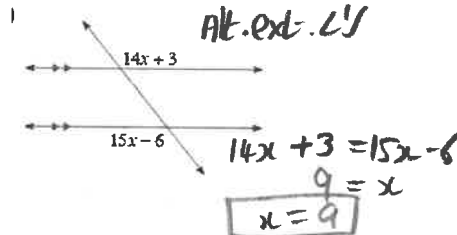
$$19x + 4 = 21x - 4$$

$$8 = 2x$$

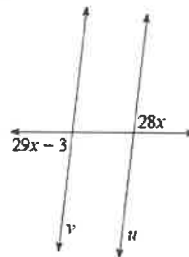
$$x = 4$$

If $x = 4$, lines $u \parallel v$
by alt. int. L's converse

85) Find x:



88) Find x so that line $u \parallel$ line v

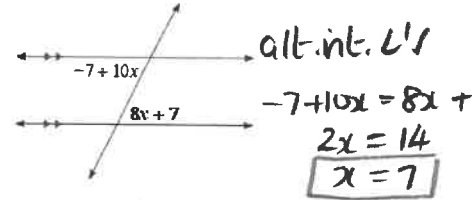


$$29x - 3 = 28x$$

$$x = 3$$

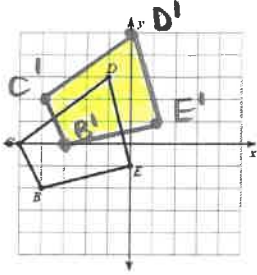
If $x = 3$, lines $u \parallel v$
by alt. ext. L's
converse

86) Find x:

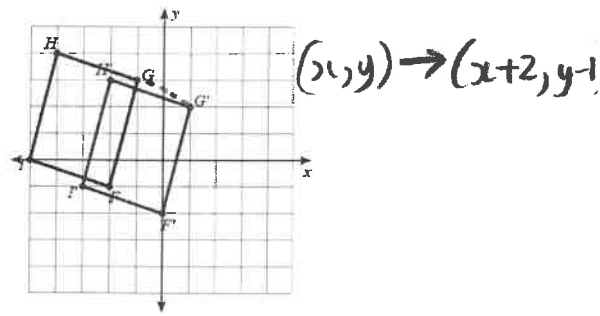


Transformations

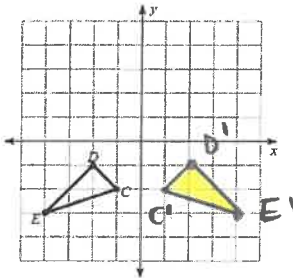
- 89) Graph the image of BCDE that is translated 1 unit right and 2 units up.



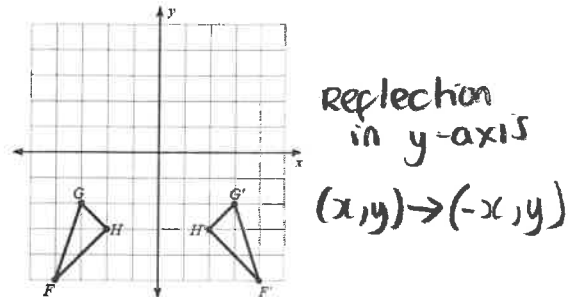
- 90) Write a rule for the translation of FGHI shown:



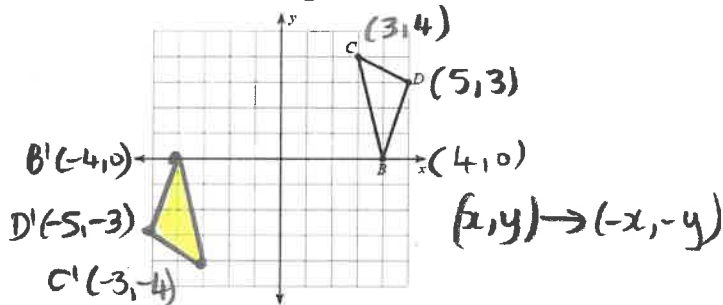
- 91) Graph the image of CDE that is a reflection across the y-axis.



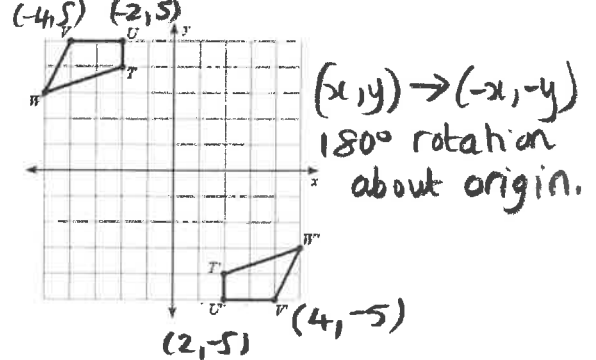
- 92) Write a rule for the reflection of FGH shown:



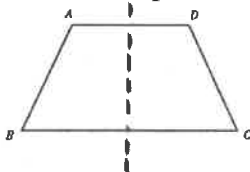
- 93) Graph the image of BCD that is a rotation 180° about the origin.



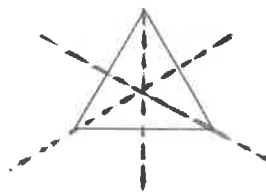
- 94) Write a rule for the rotation of TUVW shown:



- 95) Draw a dashed line to show the line of symmetry in the isosceles trapezoid shown:

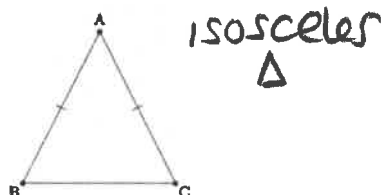


- 96) Draw a dashed line to show the lines of symmetry in the equilateral triangle shown:

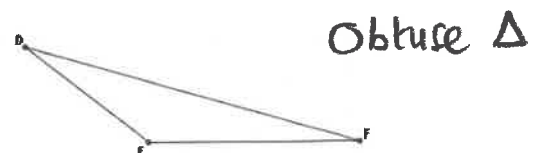


Triangle Congruence

- 97) Name the triangle by side length:



- 98) Name the triangle by angle measure



$$6x + 10 = 58^\circ$$

$$6x = 48$$

$$\boxed{x = 8}$$

$$4x + 22 = 76^\circ$$

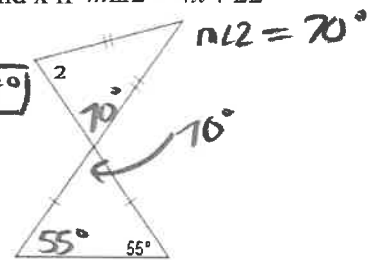
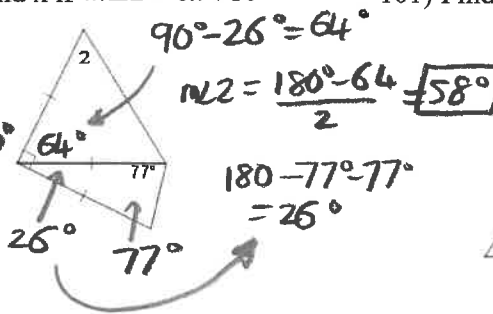
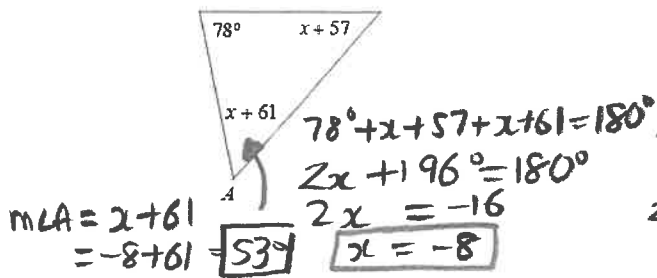
$$4x = 54$$

$$\boxed{x = 13.5}$$

99) Find $m\angle A$

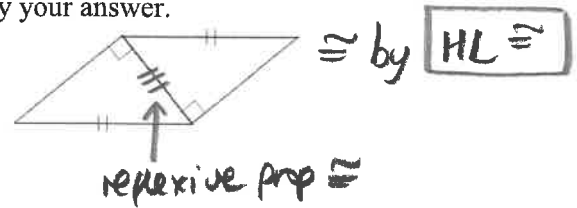
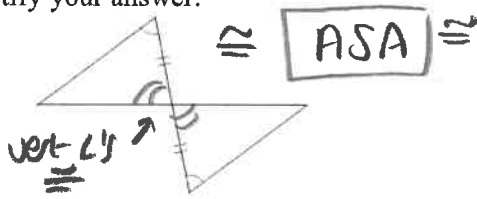
100) Find x if $m\angle 2 = 6x + 10$

101) Find x if $m\angle 2 = 4x + 22$



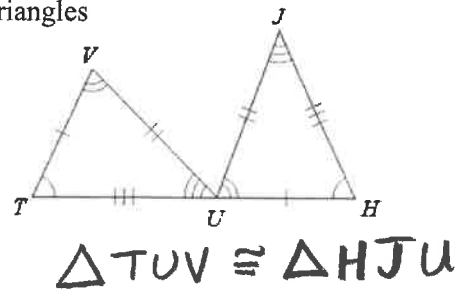
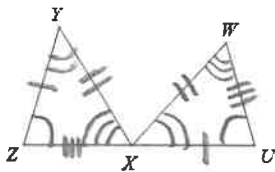
102) Determine if the two triangles are congruent. Justify your answer.

103) Determine if the two triangles are congruent. Justify your answer.



104) Mark the angles and sides to show that $\triangle ZYX \cong \triangle UXW$

105) Write a congruence statement for the graphed triangles



106) mean: 16.1
 median: 16
 mode: 16
 min: 12
 max: 22
 range: 10

107) median: 45
 IQR: 14
 range: 24

108) a) uniform
 b) skewed right
 c) bimodal
 d) skewed left

109) mean: 6.3
 median: 6.5
 mode: 8

110) range: 56