1) Find $x$ in the triangle below, giving your answer to 3 significant figures. [1]

![Triangle 1](triangle1.png)

2) Find $x$ in the triangle below, giving your answer to 3 significant figures. [1]

![Triangle 2](triangle2.png)
3) Find $x$ in the triangle below, giving your answer to 3 significant figures. [1]

4) Find angle $x$ in the triangle below, giving your answer to 1 decimal place. [1]

5) Find angle $x$ in the triangle below, giving your answer to 1 decimal place. [1]
6) A safe angle for a ladder is about 75° from the ground. If you have a 3.3 metre ladder, how high can it reach up a wall? Round your answer to 3 significant figures.

7) The distance-time graph below shows the journey a business man made from London to Huddersfield via Nottingham. (Leave answers to nearest whole number where necessary).

Find

a) the distance to Nottingham.

b) the time he spent in Nottingham.

c) at what speed he travelled from Nottingham to Huddersfield.

d) his average speed over the whole journey.
8) The speed-time graph below shows the acceleration of a Aston Martin DB9. Find an estimate for the acceleration leaving your answer to 1 decimal place.

9) Reflect the shape in the line $x = -1$. 
10) Draw the line of reflection that maps the object to its image in the diagram below.

11) Fully describe the single transformation from the triangle ABC to its image.
12) Fully describe the single transformation from the triangle ABC to its image.

13) Rotate the shape 90° anti-clockwise about centre (2,0).
14) Translate the shape by the vector \( \left( \begin{array}{c} 1 \\ 2 \end{array} \right) \).

15) Fully describe the single transformation from the triangle ABC to its image.
16) Enlarge the shape from centre (-2,0) by scale factor 2.

17) If \( b \) is proportional to \( a \) and \( b = 4 \) when \( a = 2 \). Find

   a) the formula for \( b \) in terms of \( a \)
   
   b) the value of \( b \) given \( a = 8 \)
   
   c) the value of \( a \) given \( b = 18 \)

18) If \( c \propto b^2 \) and \( c = 100 \) when \( b = 5 \). Find

   a) the formula for \( c \) in terms of \( b \)
   
   b) the value of \( c \) given \( b = 8 \)
   
   c) the value of \( b \) given \( c = 324 \)
19) If $x$ varies inversely as $w$ and $x = 1$ when $w = 12$, Find

a) the formula for $x$ in terms of $w$

b) the value of $x$ given $w = 4$

c) the value of $w$ given $x = 6$

20) If $n$ varies inversely as the root of $m$ and $n = 7$ when $m = 16$, Find

a) the formula for $n$ in terms of $m$

b) the value of $n$ given $m = 25$

c) the value of $m$ given $n = 2\frac{4}{5}$
Solutions for the assessment Trig, Stats, Transform and Proportionality

1) \( x = 5.29 \text{ cm} \)

2) \( x = 2.23 \text{ cm} \)

3) \( x = 7.46 \text{ cm} \)

4) \( x = 45.6^\circ \)

5) \( x = 50.2^\circ \)

6) Height = 3.19 m

7) a) 120 km  b) 1.5 hours 
    c) 45 km/h  d) 49 km/h 

8) \( 3.9 \text{ m/s}^2 (3.8 - 4) \)

9) 

10)
11) reflection in \( y = -x \)

12) rotation 90° clockwise about (-2,2)
15) enlargement scale factor 2 centre (0,0)

16) 

17) a) \( b = 2a \)  b) 16  c) 9

18) a) \( c = 4b^2 \)  b) 256  c) 9

19) a) \( x = \frac{12}{w} \)  b) 3  c) 2

20) a) \( n = \frac{28}{\sqrt{m}} \)  b) 5\(\frac{3}{5}\)  c) 100