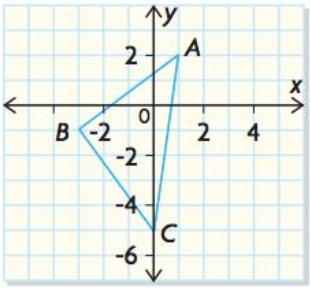
Exam Review Qs - Dec 12, 2018



3. The triangle at the left has vertices at $A(1, 2)$, $B(-3, -1)$, and $C(0, -5)$. Use analytic geometry to show that the triangle is an isosceles right triangle.

4. The corners of a building lot are marked at $P(-39, 39)$, $Q(-78, -13)$, $R(26, -91)$, and $S(65, -39)$ on a grid.

a) Verify that $PQRS$ is a rectangle.

b) What is the perimeter of the building?

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5 The data below shows the distance, in metres, Kapil was able to throw a cricket ball.

71.2	65.1	68.0	71.1	74.6	68.8	83.2	85.0	74.5	87.4
84.3	77.0	82.8	84.4	80.6	75.9	89.7	83.2	97.5	82.9
90.5	85.5	90.7	92.9	95.6	85.5	64.6	73.9	80.0	86.5

a Determine the highest and lowest value for the data set.

b Produce between 6 and 12 groups in which to place all the data values.

c Prepare a frequency distribution table.

d For this data, draw:

i a frequency histogram ii a relative frequency histogram

iii a cumulative frequency graph.

e Determine: i the mean ii the median.

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2. A circle centered at the origin goes through the point H(-4,7). Determine:

(total 9 marks)

a. the equation of this circle; *[4]*

b. the y-intercept(s) of this relation; *[2]*

c. the value of y when $x = -2$ for this circle. *[3]*

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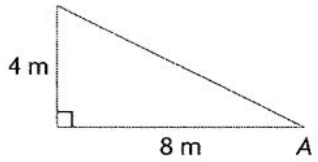
5. a) Determine the three primary trigonometric ratios for $\angle A$.



b) Calculate the measure of $\angle A$ to the nearest degree.

6. Determine x to one decimal place.

a) $\tan 46° = \dfrac{x}{14.2}$ **b)** $\cos 29° = \dfrac{17.3}{x}$

6 Eight sample values are: 6, a, 7, a, 4, b, 6 and 8 where a and b are single digit numbers and the mean is 7.

a Show that a and b have two possible solutions.

b If there is a single mode, what is the median?

7 Determine the five number summary and the interquartile range for each of the following data sets that have already been placed in rank order. Then draw a boxplot for each data set:

a 4.0, 10.1, 13.4, 14.2, 15.0, 16.5, 22.2, 22.4, 23.1, 30.0

b 11, 15, 17, 21, 23, 25, 25, 25, 27, 47, 49, 49

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1. For the line segment connecting the points A(-1, -2) and B(-7, 10);

(Total 8 marks)

a. Make a sketch, showing the two points and the line segment; *[2]*

b. Find the distance between the two points; *[2]*

c. Find the midpoint between the two points; *[2]*

d. If this line segment represented the diameter of a circle, write the equation of this circle. *[2]*

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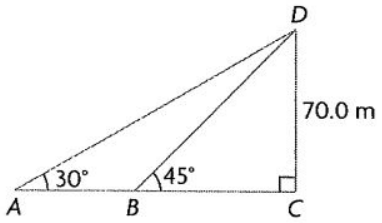
16. A swimmer observes that from point A, the angle of elevation to the top of a cliff at point D is 30°. When the swimmer swims toward the cliff for 1.5 min to point B, he estimates that the angle of elevation to the top of the cliff is about 45°. If the height of the cliff is 70.0 m, calculate the distance the swimmer swam.



17. A plane takes off in a straight line and travels along this line for 10 s, when it reaches a height of 300 m. If the plane is travelling at 60 m/s, at what angle is the plane ascending?

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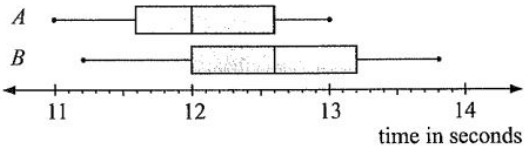
6 The given parallel boxplots represent the 100-metre sprint times for the members of two athletics squads.



a Determine the 5-number summaries for both A and B.

b Determine the i range ii interquartile range for each group.

c Copy and complete:

i The members of squad ..... generally ran faster times.

ii The times in squad ..... were more varied.