Answer KEY

FINAL REVIEW KEY - WORKBOOK CHAPTER TEST SOLUTIONS

CHAPTER TEST, p. 171 (Probability)

1.

WAYS OF EXPRESSING PROBABILITY			
Fraction	*Decimal*	*Percentage*	*Words*
$\frac{3}{125}$	0.024	2.4%	3 out of 125
$\frac{23}{100}$	0.23	23%	23 out of 100
$\frac{1}{16}$	0.0625	6.25%	1 out of 16
$\frac{47}{50}$	0.94	94%	94 out of 100, or 47 out of 50

2. a) $\frac{5}{13}$, 0.38, 38%, or 5 out of 13

   b) 3:10 or 3 to 10

   c) 5:11 or 5 to 11

3. a) $\frac{8}{675}$, 0.012, 1.2%, or 8 out of 675

   b) 1185

4. a) $\frac{1}{13}$, 0.08, 8%, or 1 out of 13

   b) $\frac{1}{25}$, 0.04, 4%, or 1 out of 25

   c) In an experiment of such a large number of trials, the number of aces drawn should be closer to the theoretical probability than the experimental probability. In 2000 trials, you can expect an ace to be drawn approximately 154 times.

5. a) $\frac{19}{250}$, 0.076, 7.6%, or 19 out of 250

   b) 152

   c) 2

CHAPTER TEST, p. 140 (Statistics)

1. 75.8%

2. \$9.05/m

3. 85.5%

4. a) mean: 152.6 cm

   median: 147.5 cm

   mode: 143 cm

   Answers will vary regarding which measure of central tendency best represents the average height in the class.

   b) outlier: 200 cm; also omit 135

   trimmed mean: 150.1 cm

   c) 50th percentile

5. a) 92nd percentile

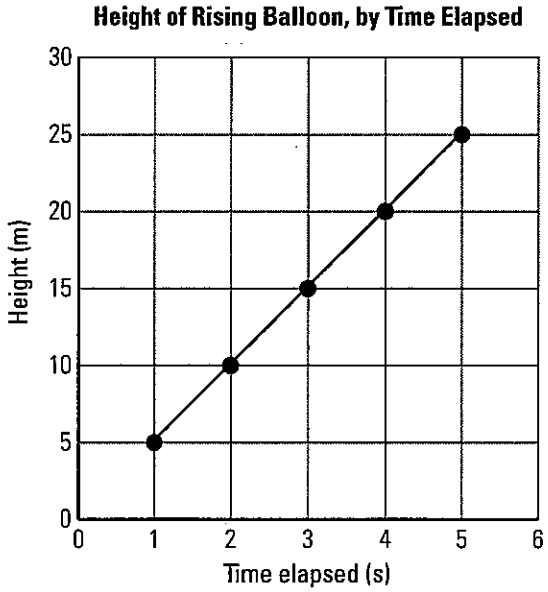
   b) 25–29 minutes

CHAPTER TEST, p. 72 Linear Relations

1. a)

HEIGHT OF RISING BALLOON, BY TIME ELAPSED

Time elapsed (seconds)	Height (m)
1	5
2	10
3	15
4	20
5	25



b) height = 5 × (time elapsed)

c) 60 seconds

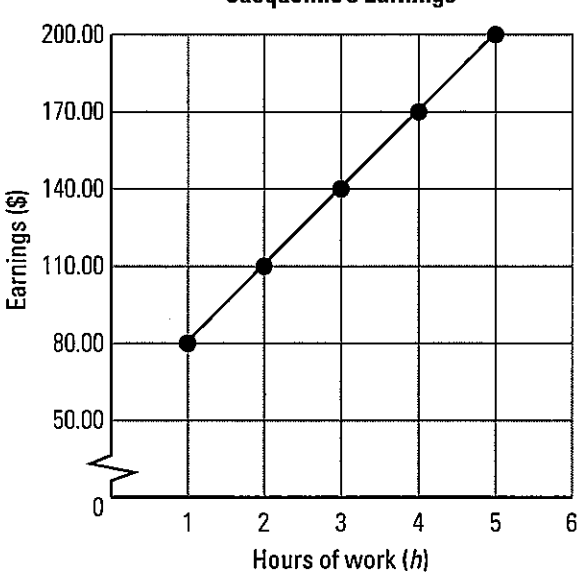
2. a) cost = \$7.50 × (hours of rental)

b) \$37.50

3. a)

JACQUELINE'S EARNINGS

Hours of work	Earnings
1	\$80.00
2	\$110.00
3	\$140.00
4	\$170.00
5	\$200.00



The relationship between hours of work and earnings is a partial linear relation.

b) The slope is 30. It represents Jacqueline's hourly wage (\$30.00).

c) The *y*-intercept is 50. It represents Jacqueline's flat fee for house calls (\$50.00).

d) earnings = \$30.00 × (hours of work) + \$50.00

4. a) **Gym A:**

cost = \$19.99 × (months of membership) + \$100.00

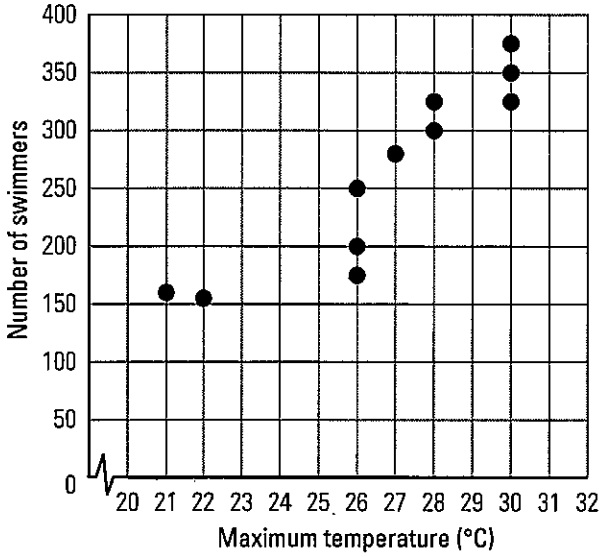
Gym B:

cost = \$29.99 × (months of membership)

b) Gym A

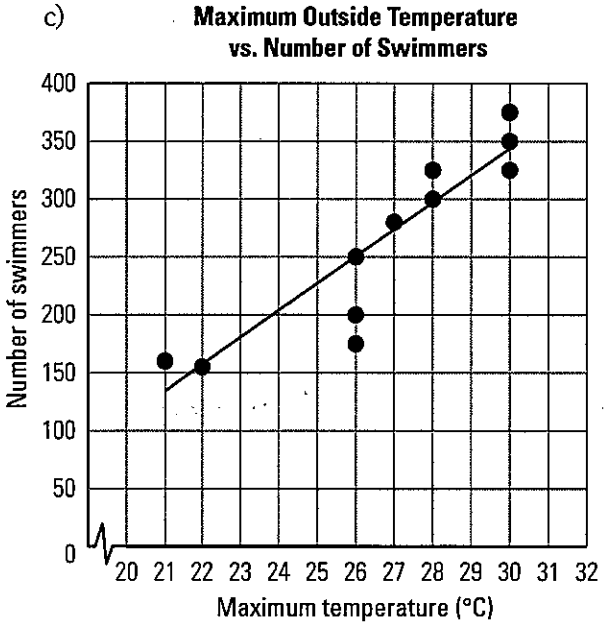
c) 10 months

5. a)



b) The relationship between maximum temperature and number of swimmers shows that, the higher the maximum temperature, the more swimmers will come to the pool. That is, the correlation between the variables is linear and positive.

c)



Answers will vary based on where the line of best fit is drawn.

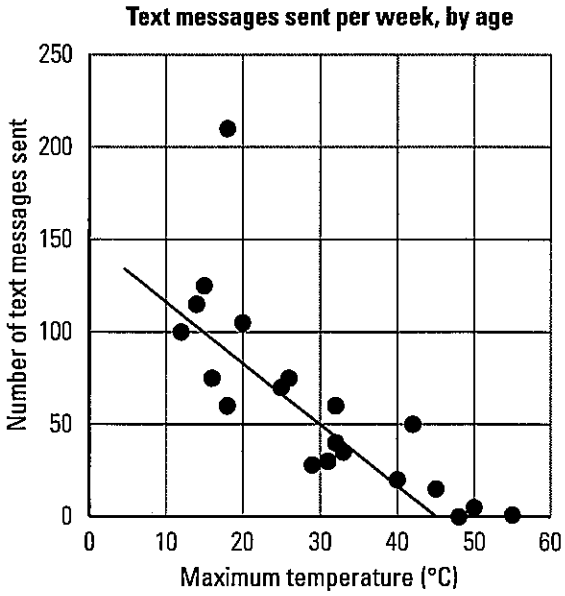
number of swimmers = 25 × (max. temperature) – 400

d) Answers will vary based on where the line of best fit is drawn.

475 swimmers

6. a) The relationship between age and number of text messages sent is linear and partial. The correlation is negative and strong. There appears to be one outlier in the data at about (18, 210).

b)



Answers will vary based on where the line of best fit is drawn.

number of text messages sent $= -\frac{10}{3}(\text{age}) + 150$

c) Answers will vary based on where the line of best fit is drawn. Using the equation above, 33 texts per week.

d) Answers will vary based on where the line of best fit is drawn. Using the equation above, 15 years old.

CHAPTER TEST p. 335

Small Business + Vehicles

1. a) Start-up costs: the goods and services you may need to purchase before you begin operating your business

   b) Operating expenses: the ongoing cost of space, equipment, supplies, and other items required to run a business

   c) Profit: the amount by which revenue exceeds expenses for a given period

   d) Break-even point: the point at which business expenses equal sales revenue

2.

Item	*Start-up or Operating?*
Basic tools	Start-up
Ladder	Start-up
Rental storage space	Operating
Truck payments	Operating
Phone bill	Operating
Gas	Operating

3. a) $3087.00

   b) Janelle does not quite have enough money to cover her start-up costs. She is $87.00 short. Suggested spending adjustments will vary.

4. a) Option 1: $5551.02

   Option 2: $5624.32

   b) Option 1: $154.20

   Option 2: $156.31

5. 39

6. a)

Item	*Value*	*Revenue or Expense?*
Payment from customer	$500.00	Revenue
Soil	$56.00	Expense
Payment from customer	$250.00	Revenue
Employee wages	$625.00	Expense
Plants	$512.00	Expense
Payment from customer	$700.00	Revenue
Gas for truck	$100.00	Expense
Truck insurance	$130.00	Expense
Truck repair	$300.00	Expense
Employee wages	$512.00	Expense
Payment from customer	$1000.00	Revenue
Telephone bill	$80.00	Expense

   b) $135.00 profit

7. a) $29 329.24

   b) $4579.24

   c) $488.82

8. a) $25 000.00

   b) $39 950.00

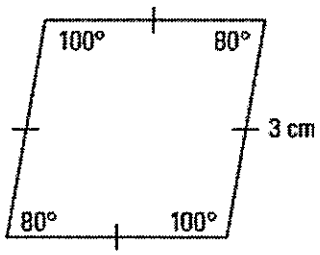
   c) She will pay $10 050.00 less if she buys the vehicle instead of leasing and then buying it.

Answer KEY

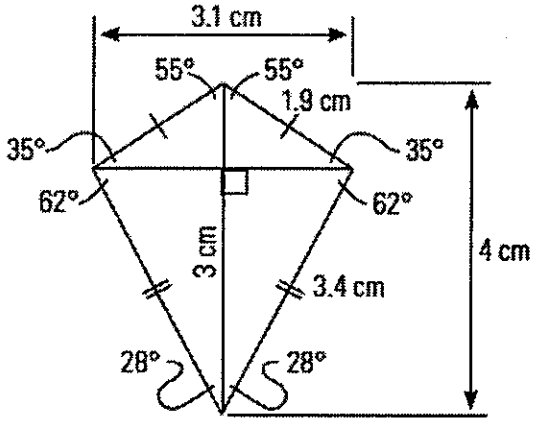
CHAPTER TEST, p. 213 Geometric Figures

1. See table at the bottom of this page.

2. a) This is a rhombus.



b) This is a kite.



3. a) $\angle Y = 112°$

b) $h \approx 2.8$ cm

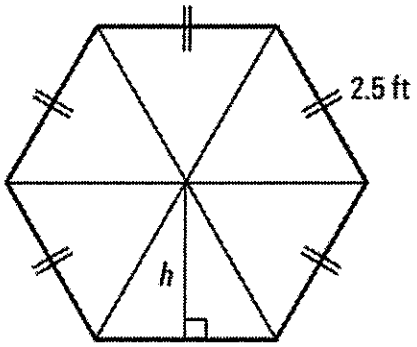
c) isosceles trapezoid

4. Each of the base angles is 52°.

5. a) $\angle 1 = 115°$

b) ABCD is a parallelogram.

6.



The area of the hot tub is 16.5 ft².

7. a) BE ≈ 8.9 ft

b) ΔABE is a right scalene triangle.

c) ΔBEC is an acute isosceles triangle.

PROPERTIES OF POLYGONS

At least two equal sides	*At least two congruent angles*	*At least one pair of parallel sides*	*Interior angles add up to 360°*	*A regular polygon*
parallelogram	parallelogram	trapezoid	trapezoid	square
rhombus	rhombus	parallelogram	parallelogram	equilateral triangle
isosceles trapezoid	isosceles trapezoid	rhombus	rhombus	regular pentagon
rectangle	rectangle	isosceles trapezoid	isosceles trapezoid	
square	square	rectangle	rectangle	
equilateral triangle	equilateral triangle	square	square	
isosceles triangle	isosceles triangle			
regular pentagon	regular pentagon			

Answer KEY

CHAPTER TEST, p. 252 Transformations

1. a) A′(–2, –1)

   b) C′(5, 3)

2. a) fourth quadrant

   b) B′(4, –7)

3. a) 3 units to the right and 4 units down

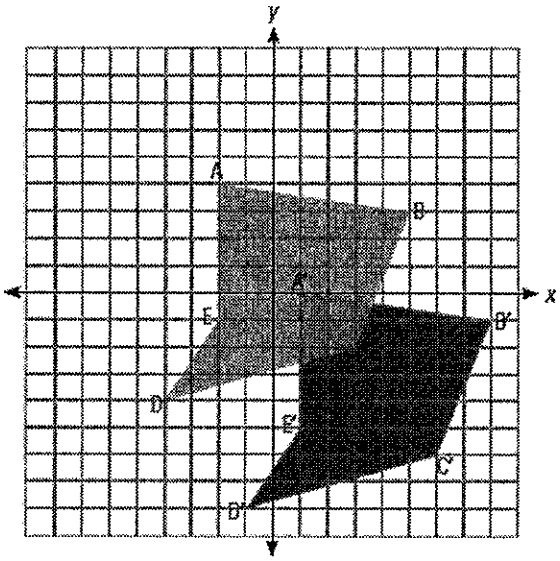
   b) A′(1, 0)

   B′(8, –1)

   C′(6, –6)

   D′(–1, –8)

   E′(1, –5)



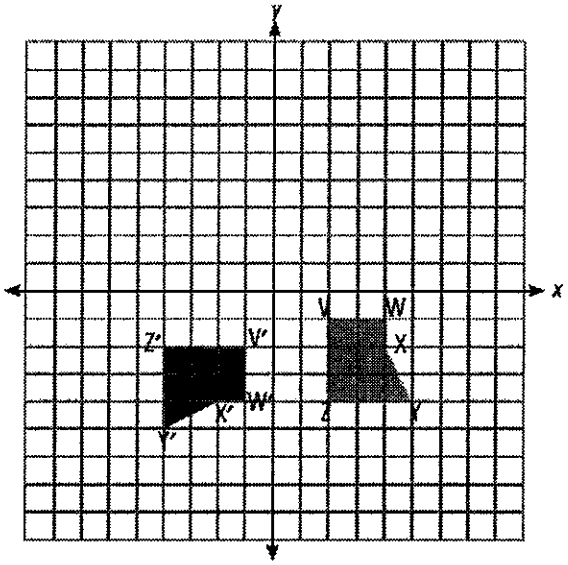
4. a) V(2, –1) → V′(–1, –2)

   W(4, –1) → W′(–1, –4)

   X(4, –2) → X′(–2, –4)

   Y(5, –4) → Y′(–4, –5)

   Z(2, –4) → Z′(–4, –2)

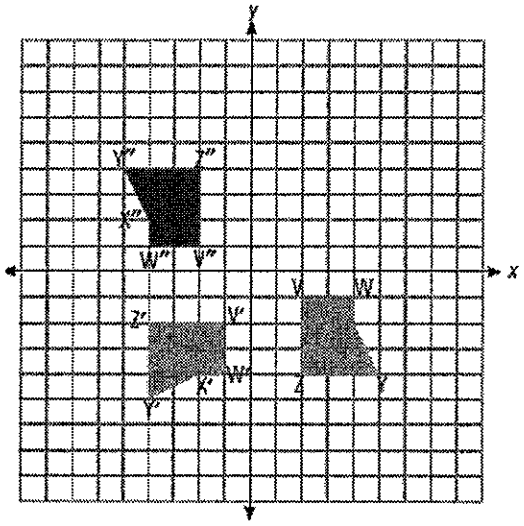


   b) V(2, –1) → V″(–2, 1)

   W(4, –1) → W″(–4, 1)

   X(4, –2) → X″(–4, 2)

   Y(5, –4) → Y″(–5, 4)



Answer KEY

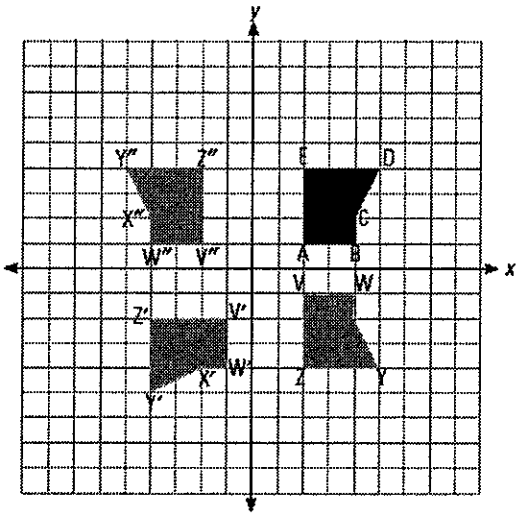
c) V″(–2, 1) → A(2, 1)

W″(–4, 1) → B(4, 1)

X″(–4, 2) → C(4, 2)

Y″(–5, 4) → D(5, 4)

Z″(–2, 4) → E(2, 4)



5. A″(1, –2)

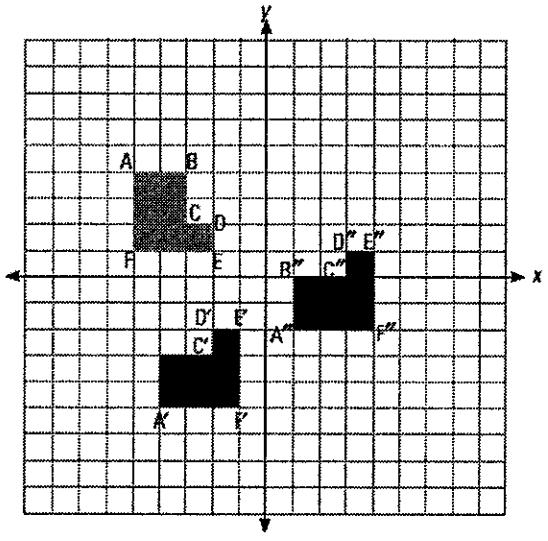
B″(1, 0)

C″(3, 0)

D″(3, 1)

E″(4, 1)

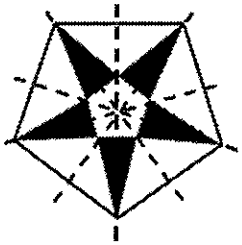
F″(4, –2)



6. Answers will vary. Possible solutions include:

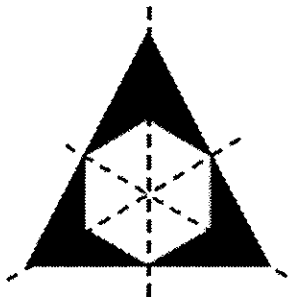
- a reflection over the *x*-axis, followed by a reflection over the *y*-axis, then a translation 1 unit to the right;
- a translation of 1 unit to the left, followed by a reflection over the *x*-axis and a reflection over the *y*-axis;
- a rotation of 180° about the origin, followed by a translation of 1 unit to the right; or
- a translation of 1 unit to the left, followed by a rotation of 180° about the origin.

7. a) The image has 5 lines of symmetry.



b) The image has no lines of symmetry.

c) The image has 3 lines of symmetry.



d) The image has no lines of symmetry.

8. a) scale factor = 1.714 or $\frac{12}{7}$

The largest doll is about 20.6 cm tall.

b) diameter: 2.1 cm

height: 3.6 cm

c) The new set of dolls is not a dilation of the first set of dolls.

Answer KEY

CHAPTER TEST, p. 287

Trigonometry

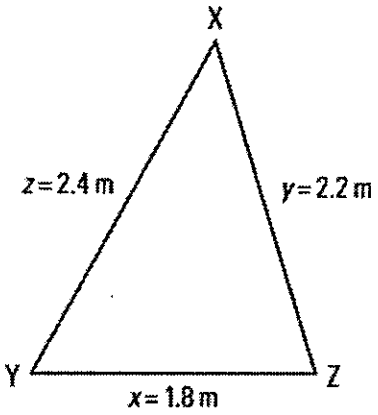
1. a) $p \approx 57.0$ cm

   b) $\ell \approx 15.6$ cm

2. a) $\angle A \approx 71°$

   b) $\angle Z \approx 57°$

3. 32.6 m

4. 

   $\angle X \approx 46°$

   $\angle Y \approx 62°$

   $\angle Z \approx 72°$

5. a) 4.3 km

   b) Meg would have to travel 47° west of north to get to the stranded boater.

6. a) Kumar is 141.0 m from the eagle.

   Meriah is 260.2 m from the eagle.

   b) 137.9 m

CHAPTER TEST, p. 105

Limits to Measurement

1. a) Accuracy is how exact a measurement is, or how close a measurement can be to the real value. Precision is the smallest unit of measurement that can be accurately read from a measuring device.

   Examples will vary.

   b) Uncertainty is the margin of error in a measurement, usually half the precision of the measuring device. Tolerance is the range of acceptable values in a measurement.

   Examples will vary.

2. Answers will vary.

3. a) kilometres

   b) millimetres

   c) metres

   d) centimetres or millimetres

4. a) precision = 0.1 km

   uncertainty = ±0.05 km

   b) precision = 1 cm

   uncertainty = ±0.5 cm

   c) precision = 0.01 kg

   uncertainty = ±0.005 kg

   d) precision = 0.1°C

   uncertainty = ±0.05°C

5. a) 3 cm ± 0.5 cm

   b) 26 mm ± 0.5 mm

   c) 26.0 mm ±0.25 mm

   d) 26.026 mm ±0.001 mm

6. maximum = $3\frac{5}{8}$ cups

   minimum = $3\frac{3}{8}$ cups

7. Item 1 (11. 3 kg) uncertainty = 0.05 kg

   Item 2 (965 g) uncertainty = 0.0005 kg

   Item 3 (5.6 kg) uncertainty = 0.05 kg

   combined weight of filled box = 17.865 kg ± 0.1005 kg

8. 536cm ± 1 cm

9. 9.75 kg to 10.25 kg

10. a) maximum diameter = 1.536 cm

    minimum diameter = 1.512 cm

    b)

ACCEPTABLE MEASURED VALUES

Drill hole diameter (cm)	*Acceptable? (Yes/No)*
1.5241 cm	Yes
1.5119 cm	No
1.532 cm	Yes
1.540 cm	No
1.5355 cm	Yes
1.537	No

11. a) 0.010 mm

    b) maximum = 0.805 mm

    minimum = 0.795 mm

12. a) 50°F

    b) 250°F

    c) i) 250±25°F

    ii) $^{275°F}_{225°F}$

    iii) $275^{+0}_{-50°F}$

    iv) $225^{+50°F}_{-0}$