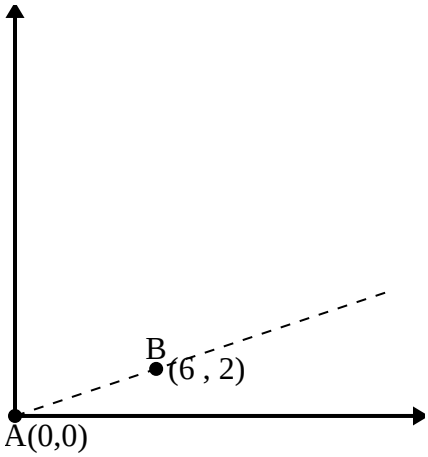
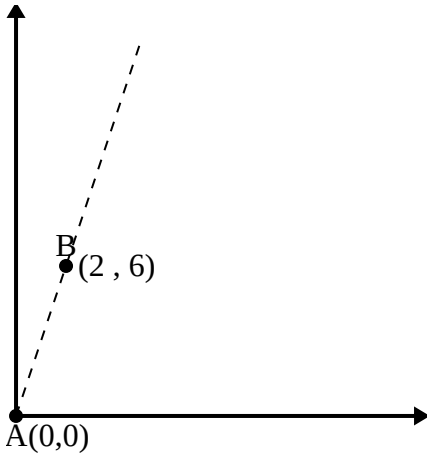
Applying the Law of Cosines Name:

Use the law of Cosines to find the point B's angle relative to point A.

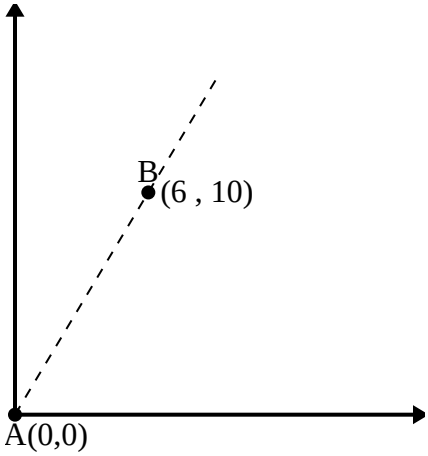
1)



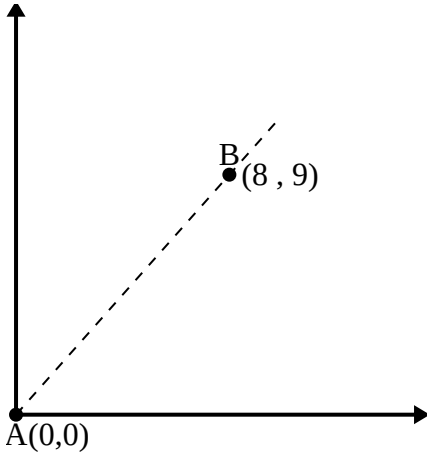
2)



3)



4)



Answers

1. _____

2. _____

3. _____

4. _____

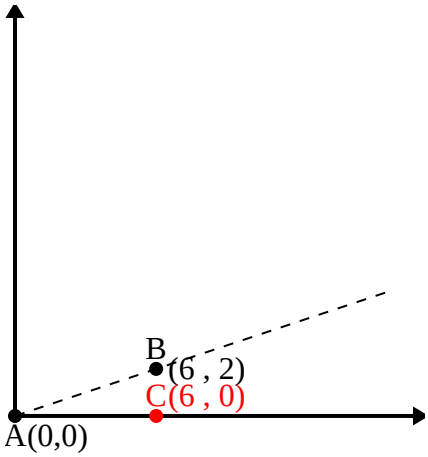
1-4	75	50	25	0

Applying the Law of Cosines

Name: **Answer Key**

Use the law of Cosines to find the point B's angle relative to point A.

1)



$\overline{AB}$ length = 6.32

$\overline{AC}$ length = 6

$\overline{BC}$ length = 2

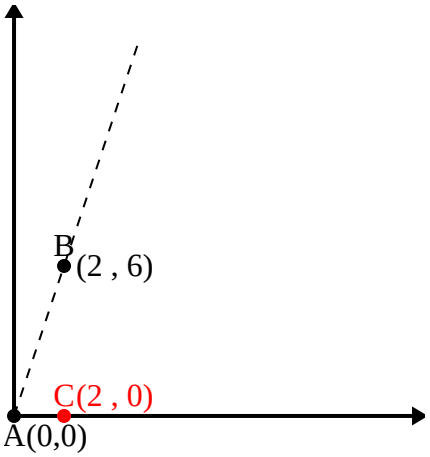
(40 + 36 + 4) ÷ (2 × 6.32 × 6)

0.95

$\cos^{-1}(0.95)$

18.43°

2)



$\overline{AB}$ length = 6.32

$\overline{AC}$ length = 2

$\overline{BC}$ length = 6

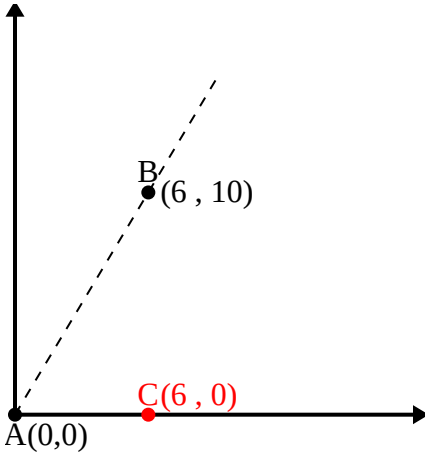
(40 + 4 + 36) ÷ (2 × 6.32 × 2)

0.32

$\cos^{-1}(0.32)$

71.57°

3)



$\overline{AB}$ length = 11.66

$\overline{AC}$ length = 6

$\overline{BC}$ length = 10

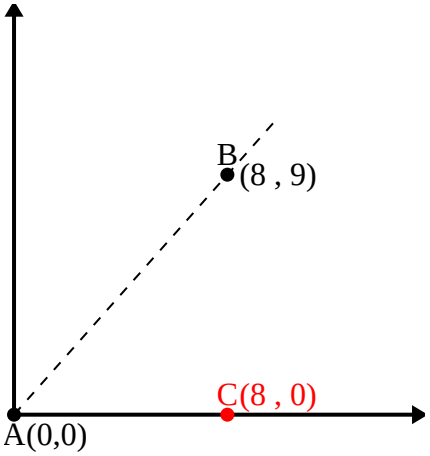
(136 + 36 + 100) ÷ (2 × 11.66 × 6)

0.51

$\cos^{-1}(0.51)$

59.04°

4)



$\overline{AB}$ length = 12.04

$\overline{AC}$ length = 8

$\overline{BC}$ length = 9

(145 + 64 + 81) ÷ (2 × 12.04 × 8)

0.66

$\cos^{-1}(0.66)$

48.37°

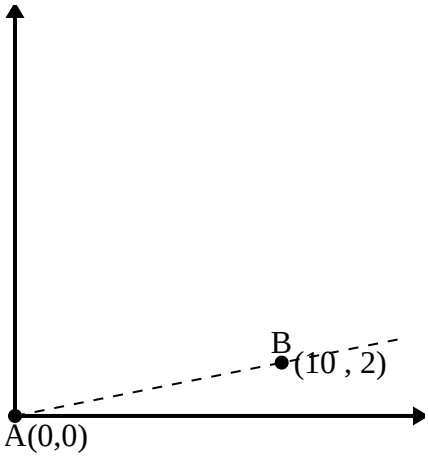
Answers

1. **18.43°**
2. **71.57°**
3. **59.04°**
4. **48.37°**

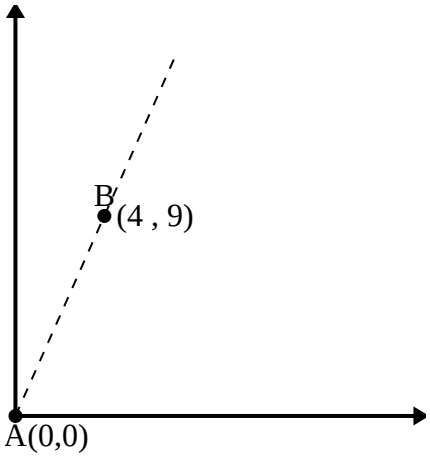
1-4	75	50	25	0

Use the law of Cosines to find the point B's angle relative to point A.

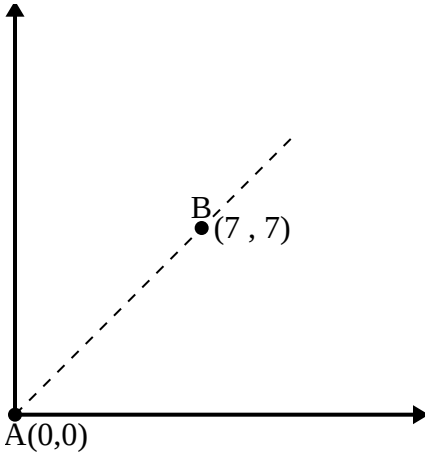
1)



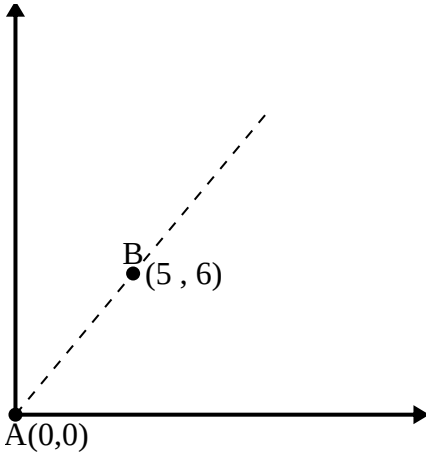
2)



3)



4)



Answers

1. _____

2. _____

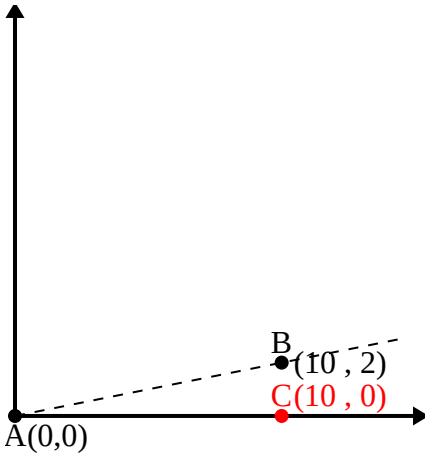
3. _____

4. _____

1-4	75	50	25	0

Use the law of Cosines to find the point B's angle relative to point A.

1)



$\overline{AB}$ length = 10.2

$\overline{AC}$ length = 10

$\overline{BC}$ length = 2

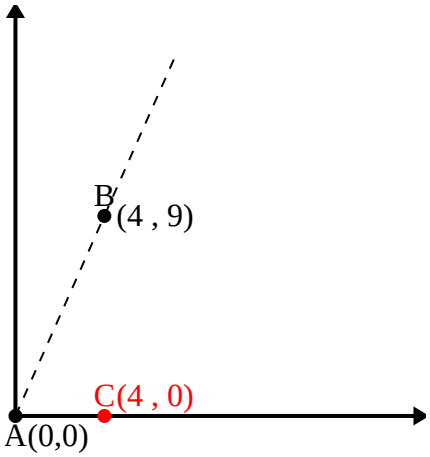
(104 + 100 + 4) ÷ (2 × 10.2 × 10)

0.98

$\cos^{-1}(0.98)$

11.31°

2)



$\overline{AB}$ length = 9.85

$\overline{AC}$ length = 4

$\overline{BC}$ length = 9

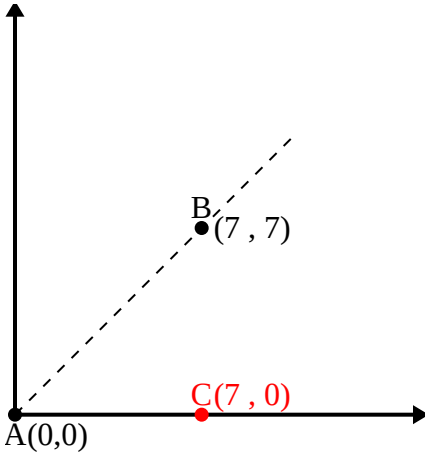
(97 + 16 + 81) ÷ (2 × 9.85 × 4)

0.41

$\cos^{-1}(0.41)$

66.04°

3)



$\overline{AB}$ length = 9.9

$\overline{AC}$ length = 7

$\overline{BC}$ length = 7

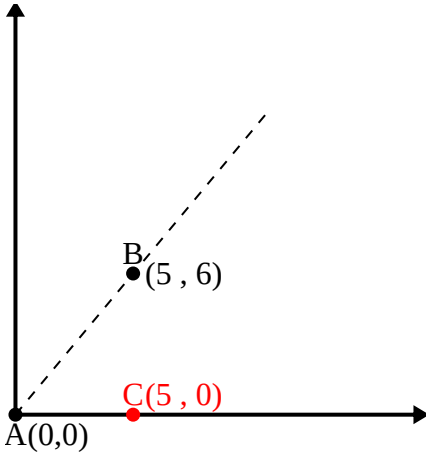
(98 + 49 + 49) ÷ (2 × 9.9 × 7)

0.71

$\cos^{-1}(0.71)$

45°

4)



$\overline{AB}$ length = 7.81

$\overline{AC}$ length = 5

$\overline{BC}$ length = 6

(61 + 25 + 36) ÷ (2 × 7.81 × 5)

0.64

$\cos^{-1}(0.64)$

50.19°

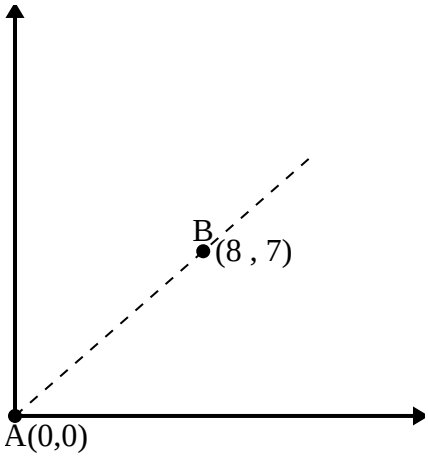
Answers

1. **11.31°**
2. **66.04°**
3. **45°**
4. **50.19°**

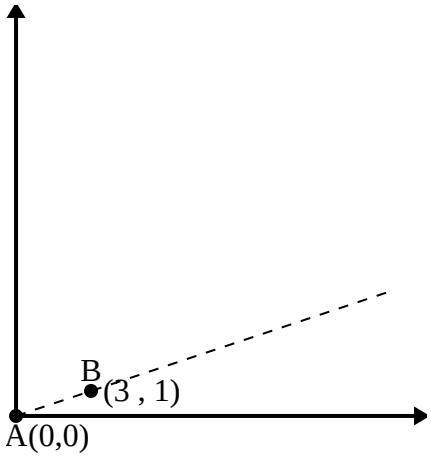
1-4	75	50	25	0

Use the law of Cosines to find the point B's angle relative to point A.

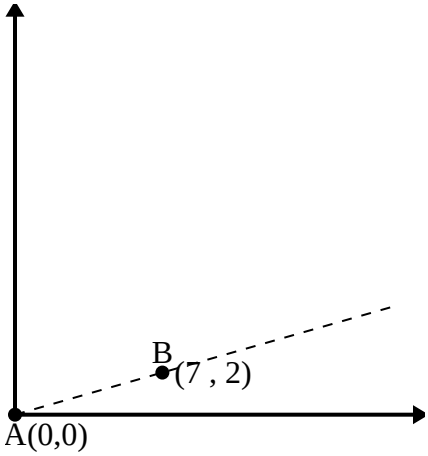
1)



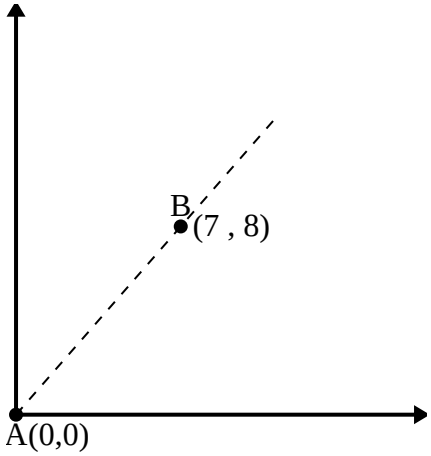
2)



3)



4)



Answers

1. _____

2. _____

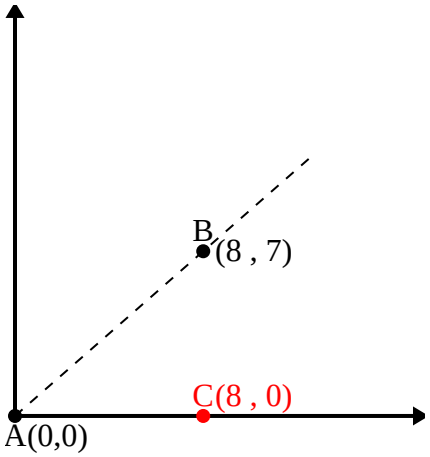
3. _____

4. _____

1-4	75	50	25	0

Use the law of Cosines to find the point B's angle relative to point A.

1)



$\overline{AB}$ length = 10.63

$\overline{AC}$ length = 8

$\overline{BC}$ length = 7

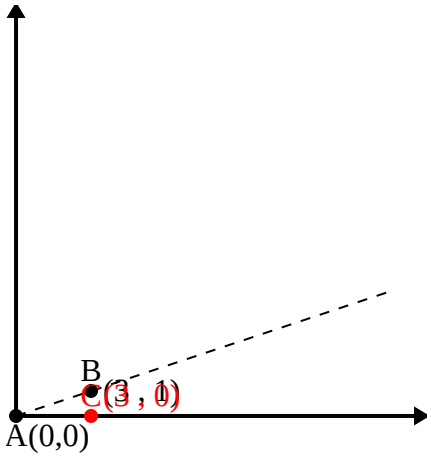
(113 + 64 + 49) ÷ (2 × 10.63 × 8)

0.75

$\cos^{-1}(0.75)$

41.19°

2)



$\overline{AB}$ length = 3.16

$\overline{AC}$ length = 3

$\overline{BC}$ length = 1

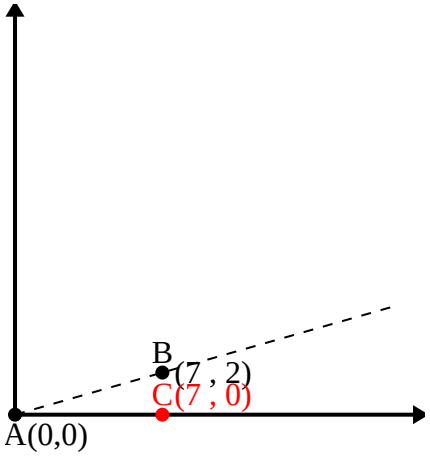
(10 + 9 + 1) ÷ (2 × 3.16 × 3)

0.95

$\cos^{-1}(0.95)$

18.43°

3)



$\overline{AB}$ length = 7.28

$\overline{AC}$ length = 7

$\overline{BC}$ length = 2

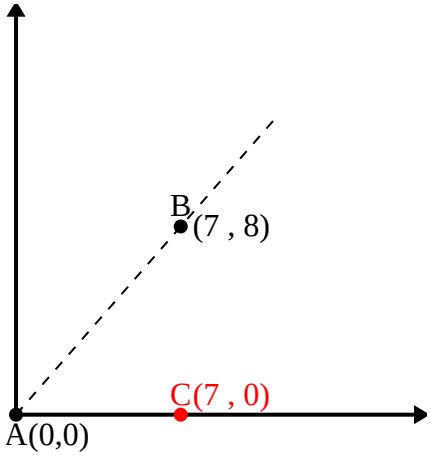
(53 + 49 + 4) ÷ (2 × 7.28 × 7)

0.96

$\cos^{-1}(0.96)$

15.95°

4)



$\overline{AB}$ length = 10.63

$\overline{AC}$ length = 7

$\overline{BC}$ length = 8

(113 + 49 + 64) ÷ (2 × 10.63 × 7)

0.66

$\cos^{-1}(0.66)$

48.81°

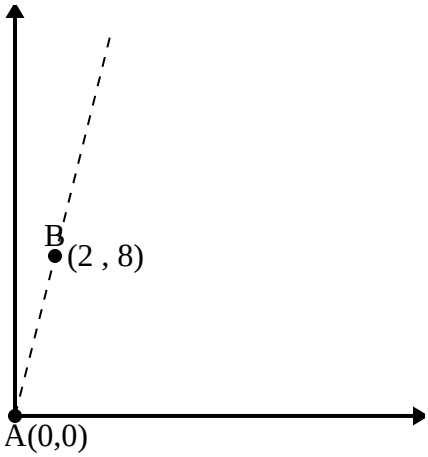
Answers

1. **41.19°**
2. **18.43°**
3. **15.95°**
4. **48.81°**

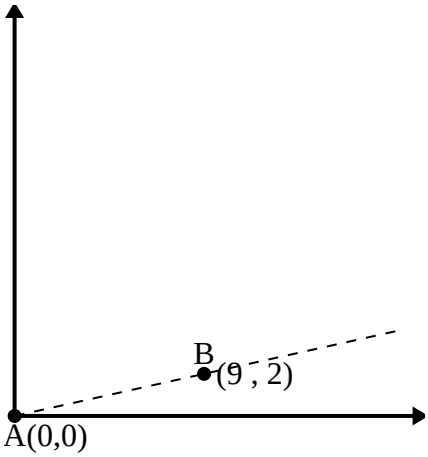
1-4	75	50	25	0

Use the law of Cosines to find the point B's angle relative to point A.

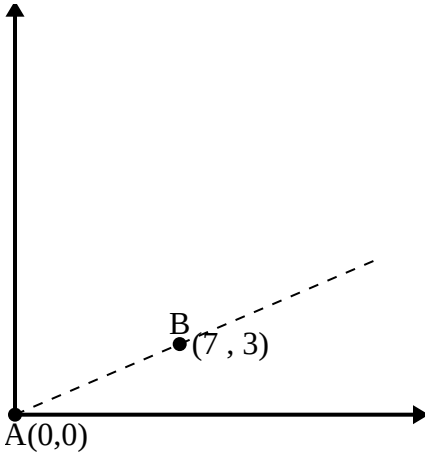
1)



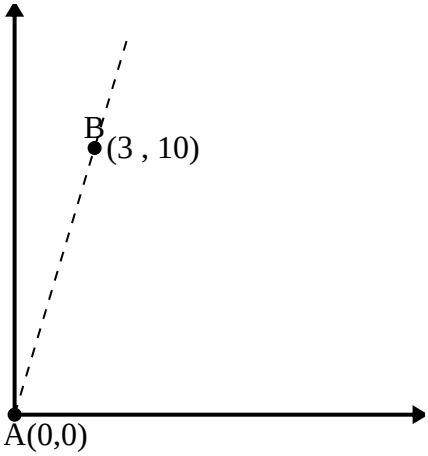
2)



3)



4)



Answers

1. _____

2. _____

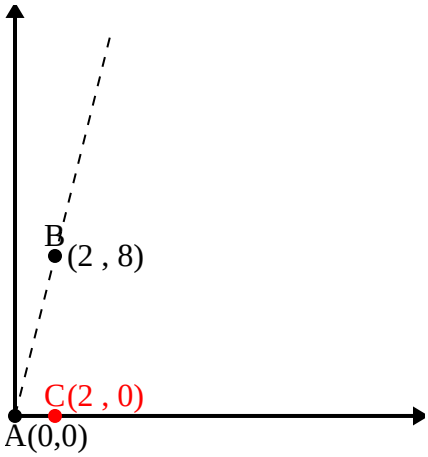
3. _____

4. _____

1-4	75	50	25	0

Use the law of Cosines to find the point B's angle relative to point A.

1)



$\overline{AB}$ length = 8.25

$\overline{AC}$ length = 2

$\overline{BC}$ length = 8

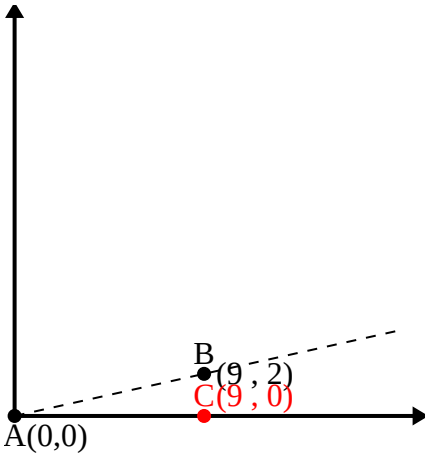
(68 + 4 + 64) ÷ (2 × 8.25 × 2)

0.24

$\cos^{-1}(0.24)$

75.96°

2)



$\overline{AB}$ length = 9.22

$\overline{AC}$ length = 9

$\overline{BC}$ length = 2

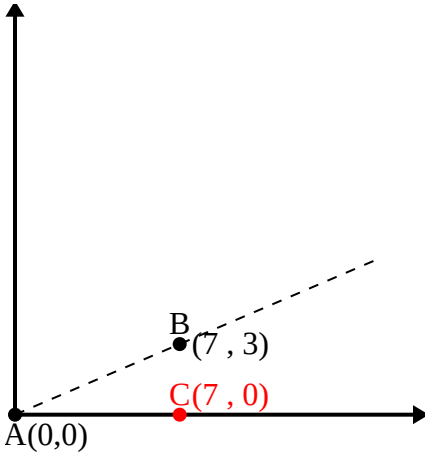
(85 + 81 + 4) ÷ (2 × 9.22 × 9)

0.98

$\cos^{-1}(0.98)$

12.53°

3)



$\overline{AB}$ length = 7.62

$\overline{AC}$ length = 7

$\overline{BC}$ length = 3

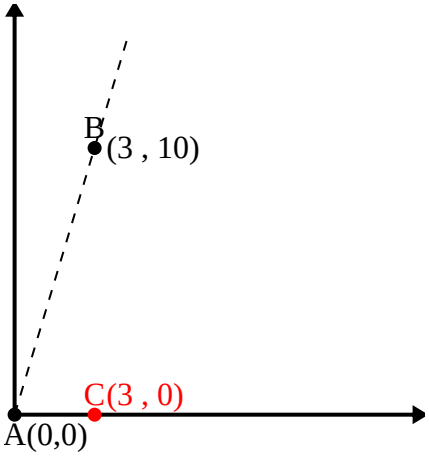
(58 + 49 + 9) ÷ (2 × 7.62 × 7)

0.92

$\cos^{-1}(0.92)$

23.2°

4)



$\overline{AB}$ length = 10.44

$\overline{AC}$ length = 3

$\overline{BC}$ length = 10

(109 + 9 + 100) ÷ (2 × 10.44 × 3)

0.29

$\cos^{-1}(0.29)$

73.3°

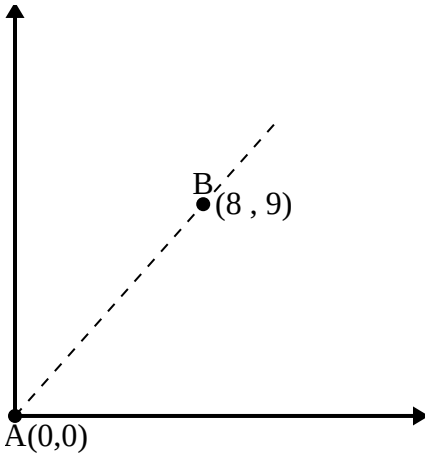
Answers

1. **75.96°**
2. **12.53°**
3. **23.2°**
4. **73.3°**

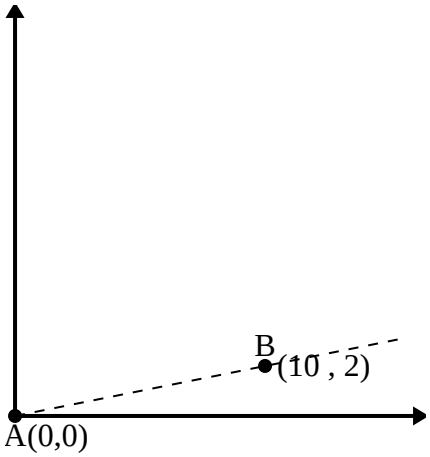
1-4	75	50	25	0

Use the law of Cosines to find the point B's angle relative to point A.

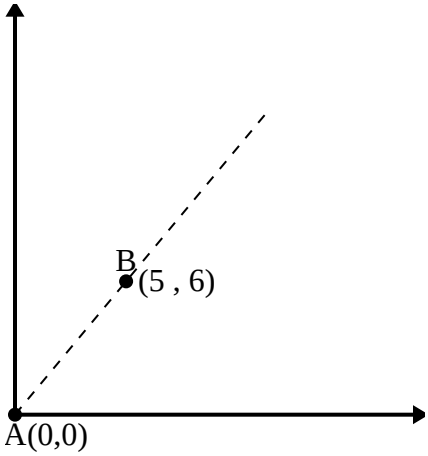
1)



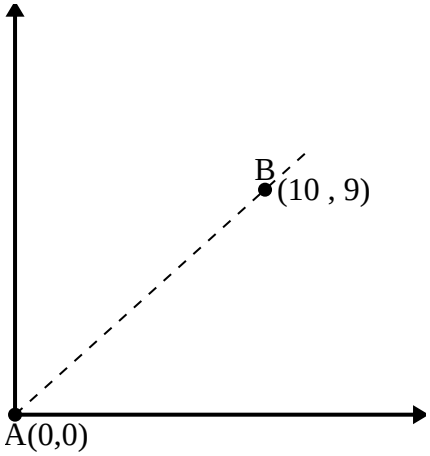
2)



3)



4)



Answers

1. _____

2. _____

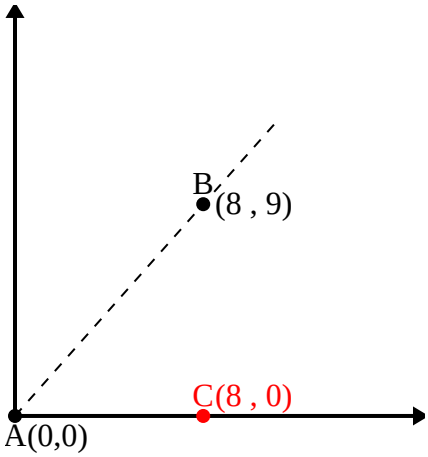
3. _____

4. _____

1-4	75	50	25	0

Use the law of Cosines to find the point B's angle relative to point A.

1)



$\overline{AB}$ length = 12.04

$\overline{AC}$ length = 8

$\overline{BC}$ length = 9

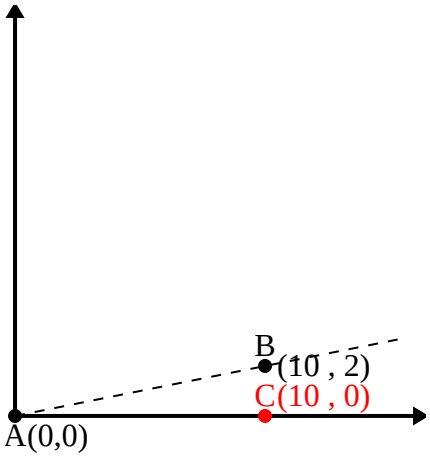
(145 + 64 + 81) ÷ (2 × 12.04 × 8)

0.66

$\cos^{-1}(0.66)$

48.37°

2)



$\overline{AB}$ length = 10.2

$\overline{AC}$ length = 10

$\overline{BC}$ length = 2

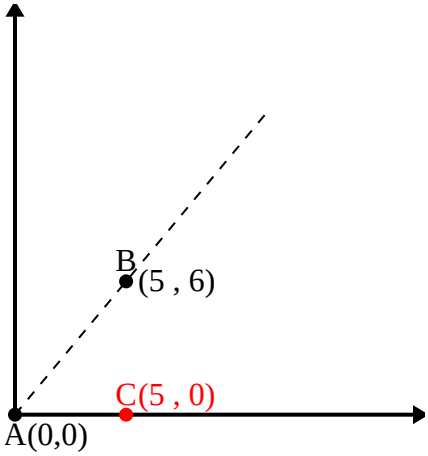
(104 + 100 + 4) ÷ (2 × 10.2 × 10)

0.98

$\cos^{-1}(0.98)$

11.31°

3)



$\overline{AB}$ length = 7.81

$\overline{AC}$ length = 5

$\overline{BC}$ length = 6

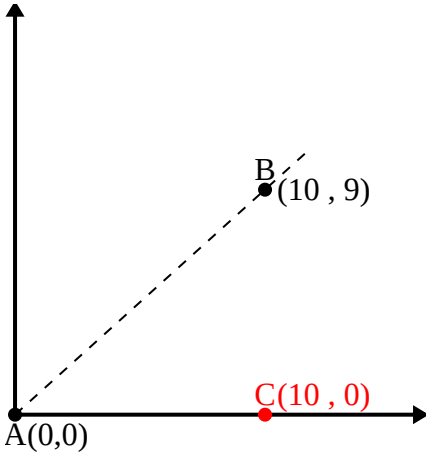
(61 + 25 + 36) ÷ (2 × 7.81 × 5)

0.64

$\cos^{-1}(0.64)$

50.19°

4)



$\overline{AB}$ length = 13.45

$\overline{AC}$ length = 10

$\overline{BC}$ length = 9

(181 + 100 + 81) ÷ (2 × 13.45 × 10)

0.74

$\cos^{-1}(0.74)$

41.99°

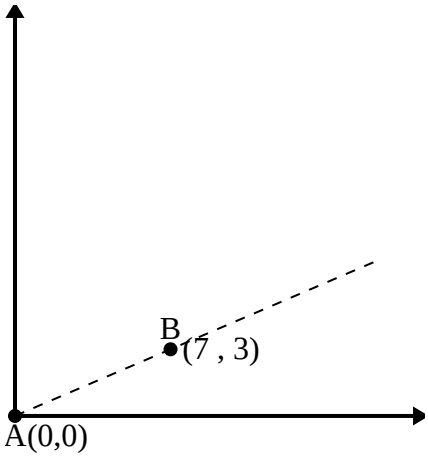
Answers

1. **48.37°**
2. **11.31°**
3. **50.19°**
4. **41.99°**

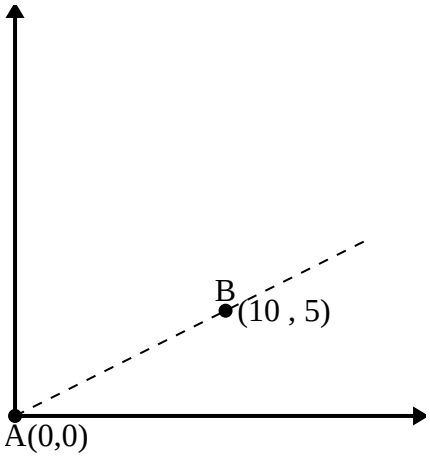
1-4	75	50	25	0

Use the law of Cosines to find the point B's angle relative to point A.

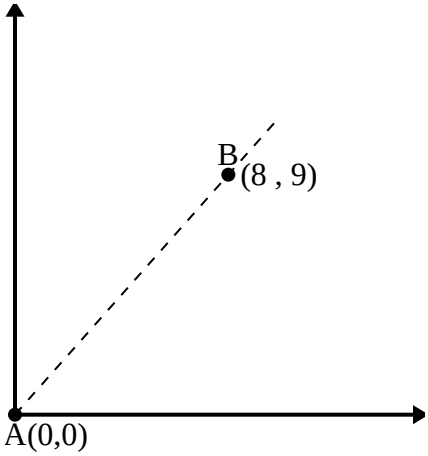
1)



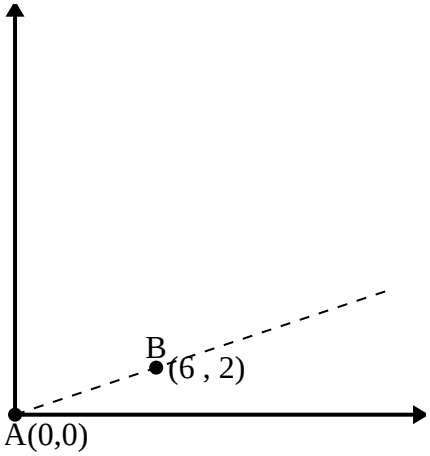
2)



3)



4)



Answers

1. _____

2. _____

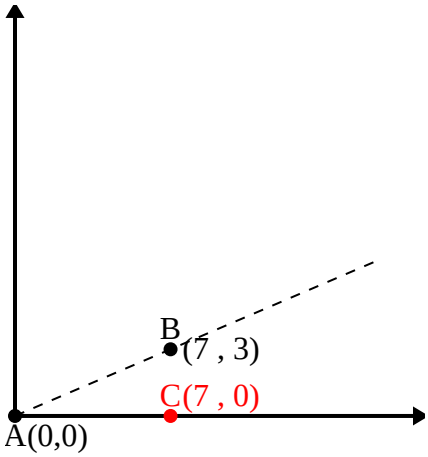
3. _____

4. _____

1-4	75	50	25	0

Use the law of Cosines to find the point B's angle relative to point A.

1)



$\overline{AB}$ length = 7.62

$\overline{AC}$ length = 7

$\overline{BC}$ length = 3

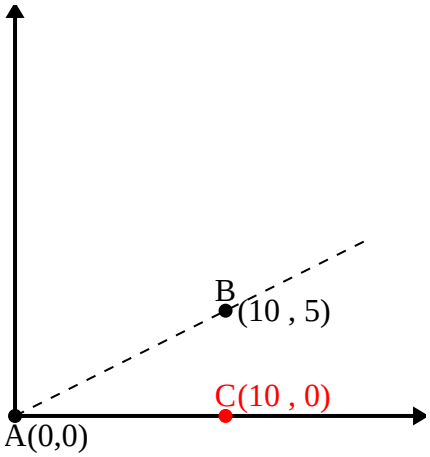
(58 + 49 + 9) ÷ (2 × 7.62 × 7)

0.92

$\cos^{-1}(0.92)$

23.2°

2)



$\overline{AB}$ length = 11.18

$\overline{AC}$ length = 10

$\overline{BC}$ length = 5

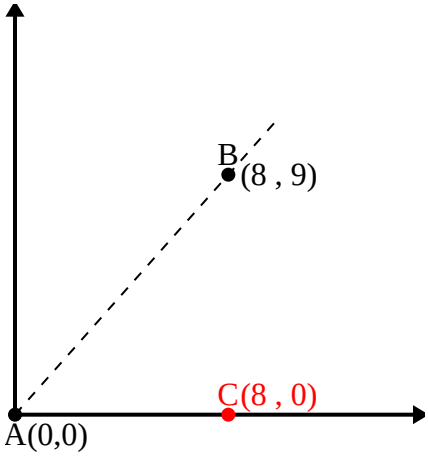
(125 + 100 + 25) ÷ (2 × 11.18 × 10)

0.89

$\cos^{-1}(0.89)$

26.57°

3)



$\overline{AB}$ length = 12.04

$\overline{AC}$ length = 8

$\overline{BC}$ length = 9

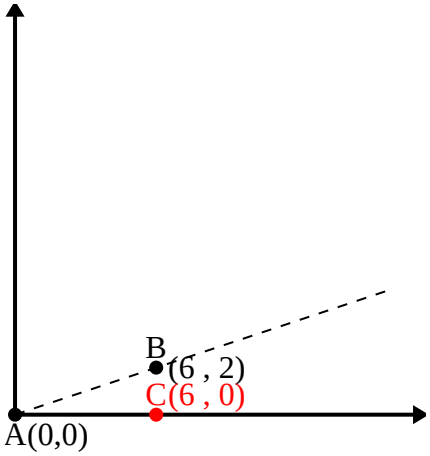
(145 + 64 + 81) ÷ (2 × 12.04 × 8)

0.66

$\cos^{-1}(0.66)$

48.37°

4)



$\overline{AB}$ length = 6.32

$\overline{AC}$ length = 6

$\overline{BC}$ length = 2

(40 + 36 + 4) ÷ (2 × 6.32 × 6)

0.95

$\cos^{-1}(0.95)$

18.43°

Answers

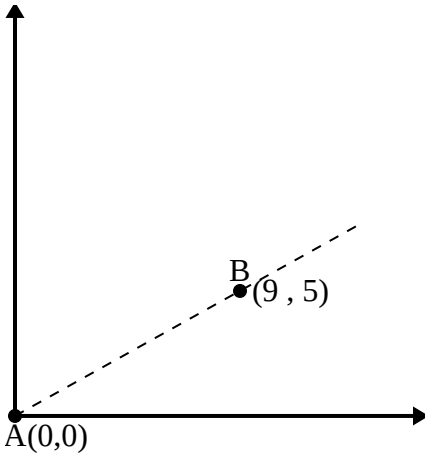
1. **23.2°**
2. **26.57°**
3. **48.37°**
4. **18.43°**

1-4	75	50	25	0

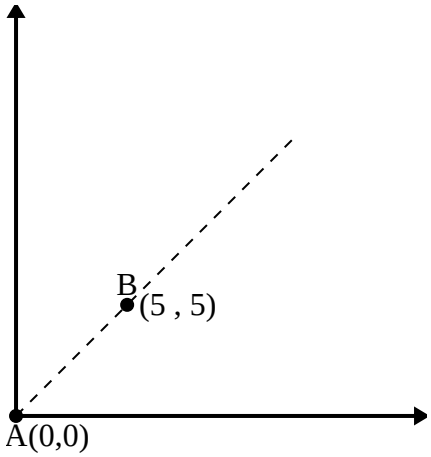
Applying the Law of Cosines Name:

Use the law of Cosines to find the point B's angle relative to point A.

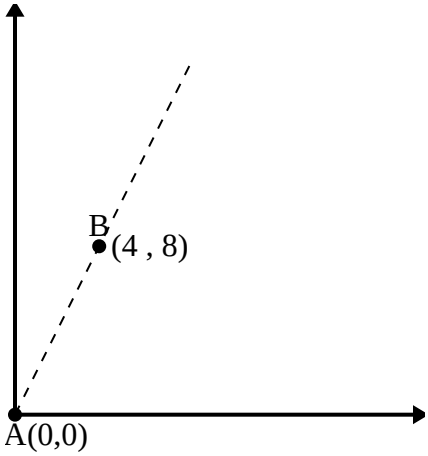
1)



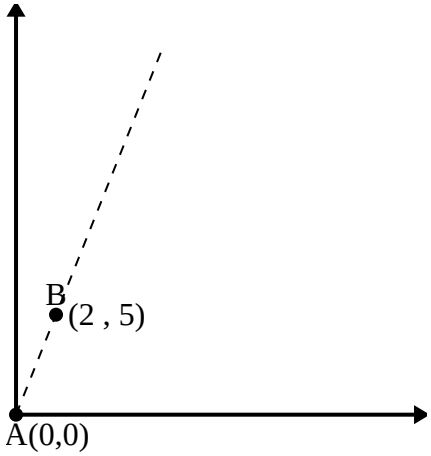
2)



3)



4)



Answers

1. _____

2. _____

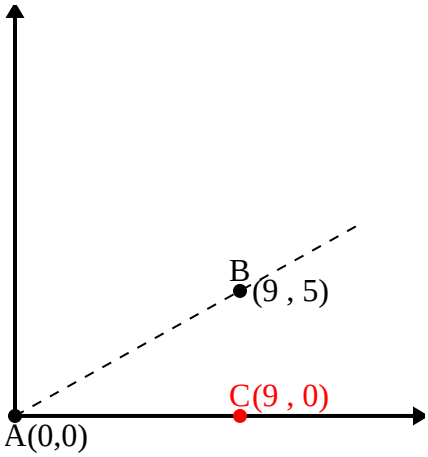
3. _____

4. _____

1-4	75	50	25	0

Use the law of Cosines to find the point B's angle relative to point A.

1)



$\overline{AB}$ length = 10.3

$\overline{AC}$ length = 9

$\overline{BC}$ length = 5

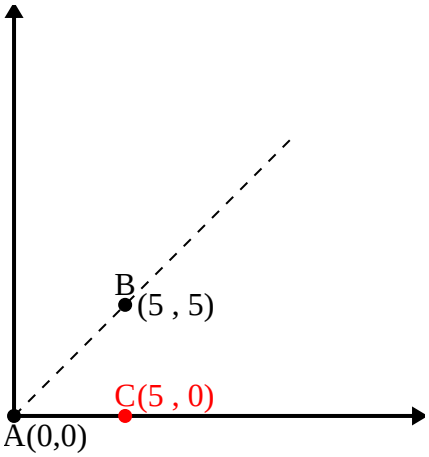
(106 + 81 + 25) ÷ (2 × 10.3 × 9)

0.87

$\cos^{-1}(0.87)$

29.05°

2)



$\overline{AB}$ length = 7.07

$\overline{AC}$ length = 5

$\overline{BC}$ length = 5

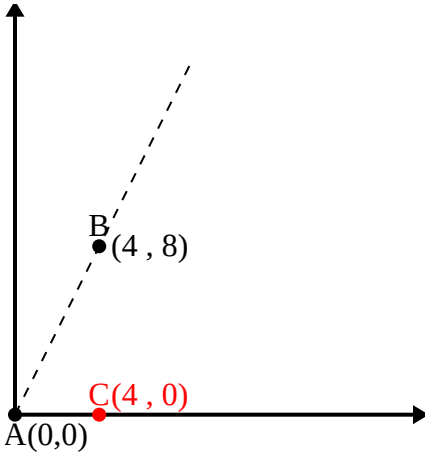
(50 + 25 + 25) ÷ (2 × 7.07 × 5)

0.71

$\cos^{-1}(0.71)$

45°

3)



$\overline{AB}$ length = 8.94

$\overline{AC}$ length = 4

$\overline{BC}$ length = 8

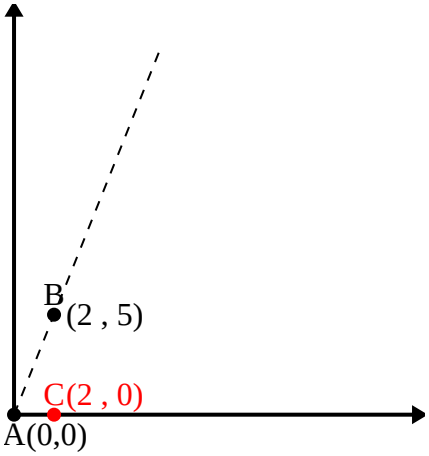
(80 + 16 + 64) ÷ (2 × 8.94 × 4)

0.45

$\cos^{-1}(0.45)$

63.43°

4)



$\overline{AB}$ length = 5.39

$\overline{AC}$ length = 2

$\overline{BC}$ length = 5

(29 + 4 + 25) ÷ (2 × 5.39 × 2)

0.37

$\cos^{-1}(0.37)$

68.2°

Answers

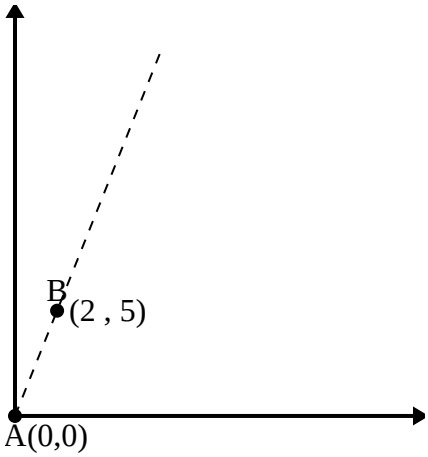
1. **29.05°**
2. **45°**
3. **63.43°**
4. **68.2°**

1-4	75	50	25	0

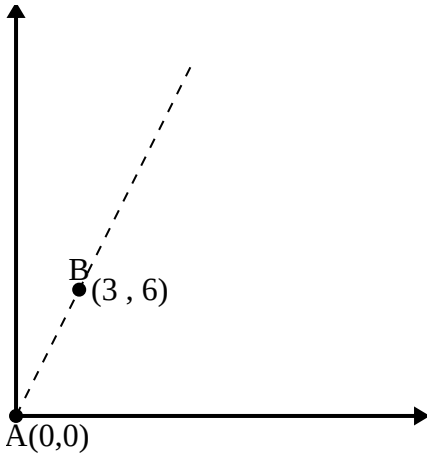
Applying the Law of Cosines Name:

Use the law of Cosines to find the point B's angle relative to point A.

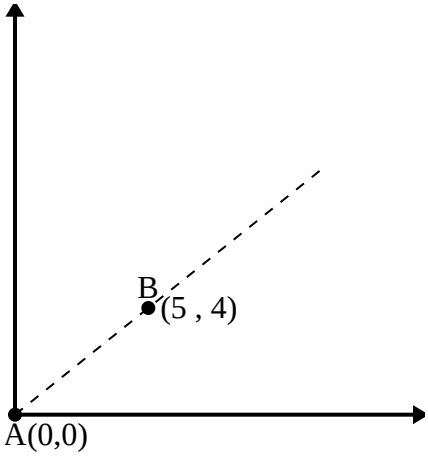
1)



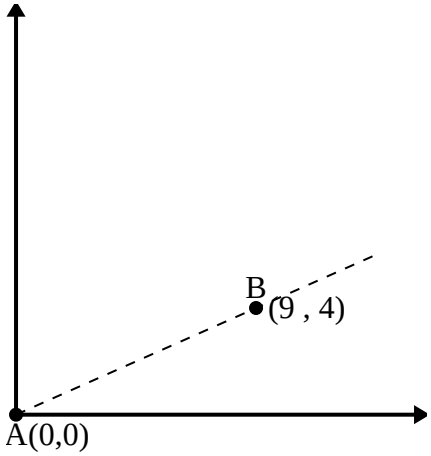
2)



3)



4)



Answers

1. _____

2. _____

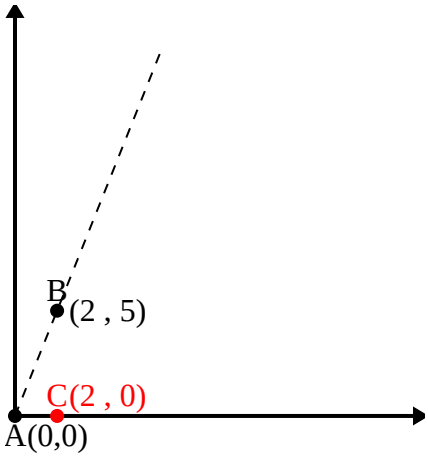
3. _____

4. _____

1-4	75	50	25	0

Use the law of Cosines to find the point B's angle relative to point A.

1)



$\overline{AB}$ length = 5.39

$\overline{AC}$ length = 2

$\overline{BC}$ length = 5

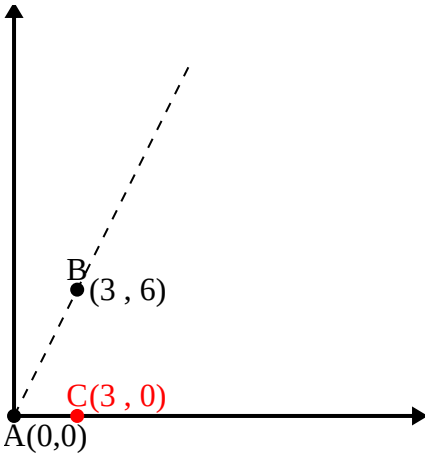
(29 + 4 + 25) ÷ (2 × 5.39 × 2)

0.37

$\cos^{-1}(0.37)$

68.2°

2)



$\overline{AB}$ length = 6.71

$\overline{AC}$ length = 3

$\overline{BC}$ length = 6

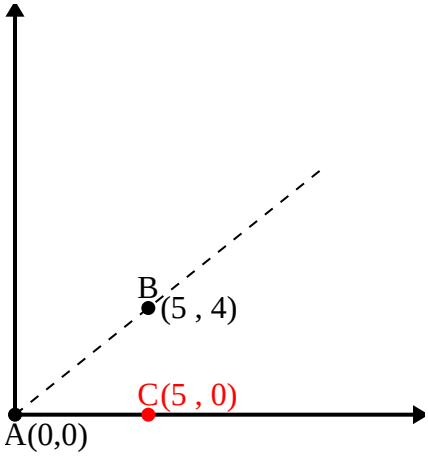
(45 + 9 + 36) ÷ (2 × 6.71 × 3)

0.45

$\cos^{-1}(0.45)$

63.43°

3)



$\overline{AB}$ length = 6.4

$\overline{AC}$ length = 5

$\overline{BC}$ length = 4

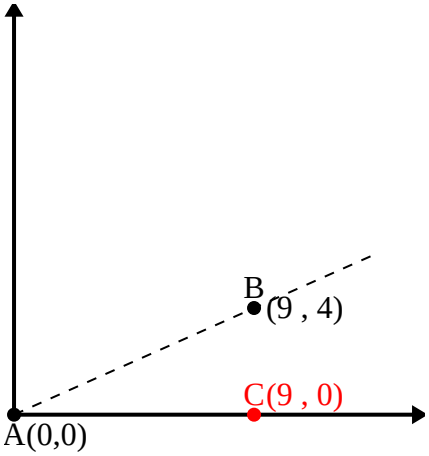
(41 + 25 + 16) ÷ (2 × 6.4 × 5)

0.78

$\cos^{-1}(0.78)$

38.66°

4)



$\overline{AB}$ length = 9.85

$\overline{AC}$ length = 9

$\overline{BC}$ length = 4

(97 + 81 + 16) ÷ (2 × 9.85 × 9)

0.91

$\cos^{-1}(0.91)$

23.96°

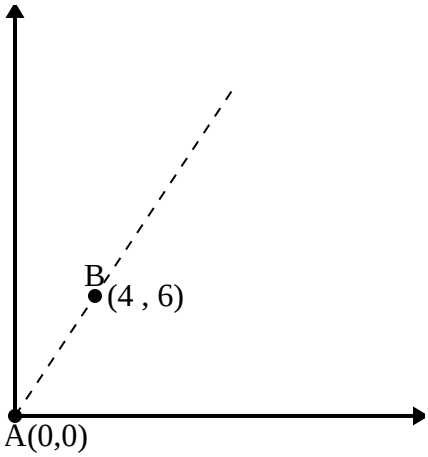
Answers

1. **68.2°**
2. **63.43°**
3. **38.66°**
4. **23.96°**

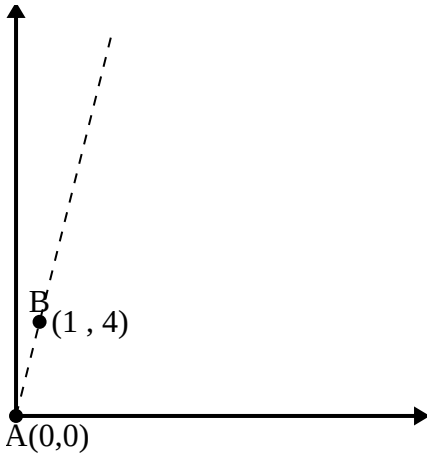
1-4	75	50	25	0

Use the law of Cosines to find the point B's angle relative to point A.

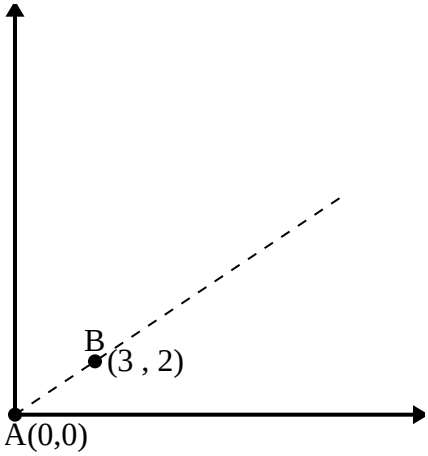
1)



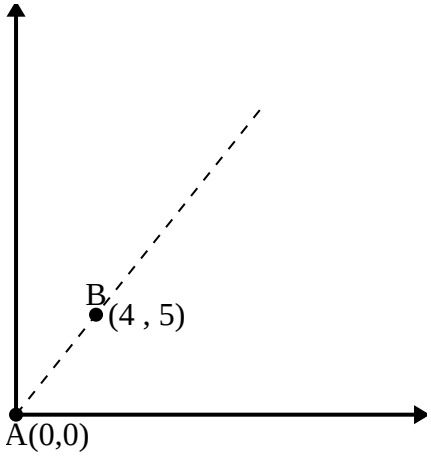
2)



3)



4)



Answers

1. _____

2. _____

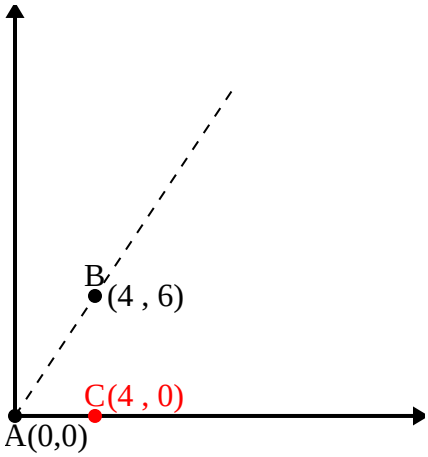
3. _____

4. _____

1-4	75	50	25	0

Use the law of Cosines to find the point B's angle relative to point A.

1)



$\overline{AB}$ length = 7.21

$\overline{AC}$ length = 4

$\overline{BC}$ length = 6

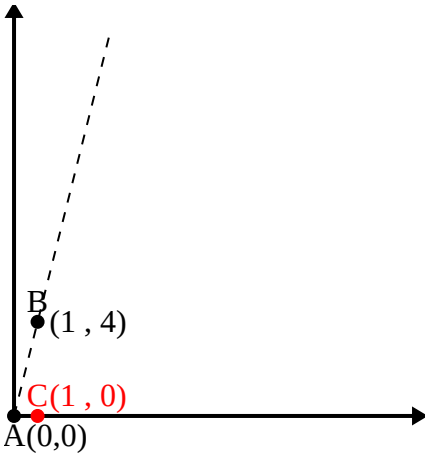
(52 + 16 + 36) ÷ (2 × 7.21 × 4)

0.55

$\cos^{-1}(0.55)$

56.31°

2)



$\overline{AB}$ length = 4.12

$\overline{AC}$ length = 1

$\overline{BC}$ length = 4

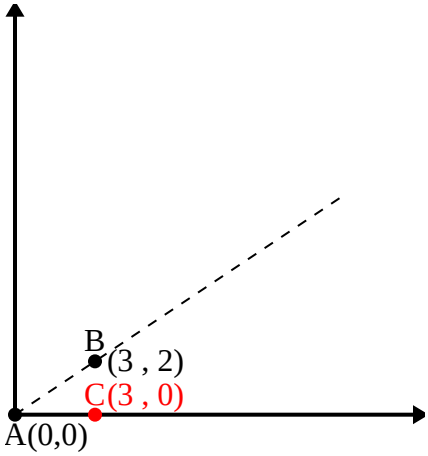
(17 + 1 + 16) ÷ (2 × 4.12 × 1)

0.24

$\cos^{-1}(0.24)$

75.96°

3)



$\overline{AB}$ length = 3.61

$\overline{AC}$ length = 3

$\overline{BC}$ length = 2

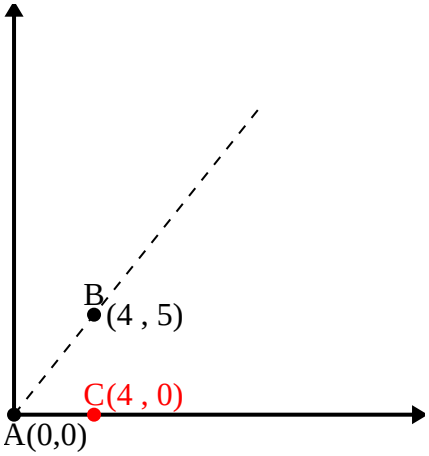
(13 + 9 + 4) ÷ (2 × 3.61 × 3)

0.83

$\cos^{-1}(0.83)$

33.69°

4)



$\overline{AB}$ length = 6.4

$\overline{AC}$ length = 4

$\overline{BC}$ length = 5

(41 + 16 + 25) ÷ (2 × 6.4 × 4)

0.62

$\cos^{-1}(0.62)$

51.34°

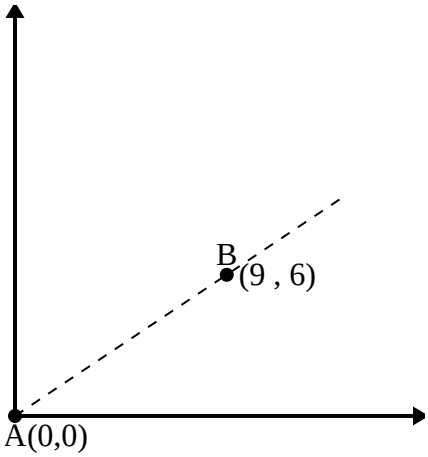
Answers

1. **56.31°**
2. **75.96°**
3. **33.69°**
4. **51.34°**

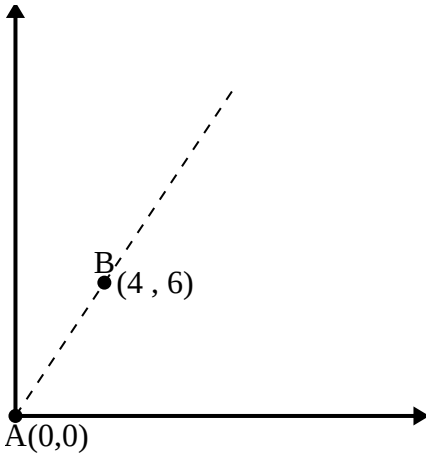
1-4	75	50	25	0

Use the law of Cosines to find the point B's angle relative to point A.

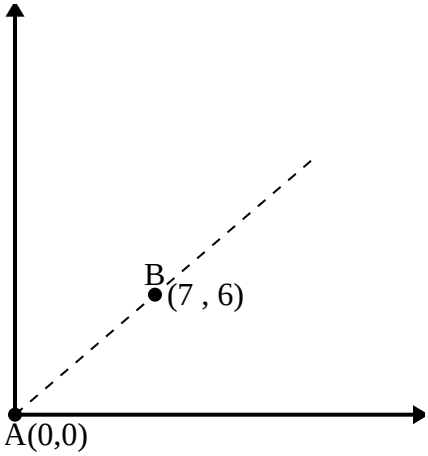
1)



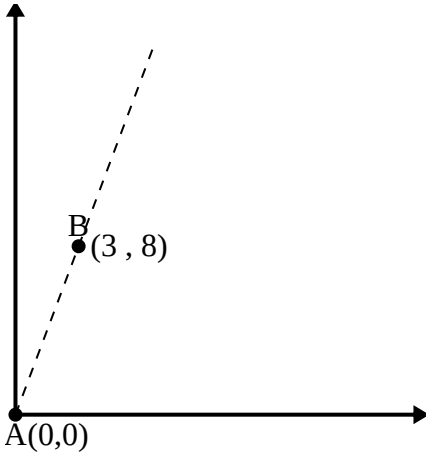
2)



3)



4)



Answers

1. _____

2. _____

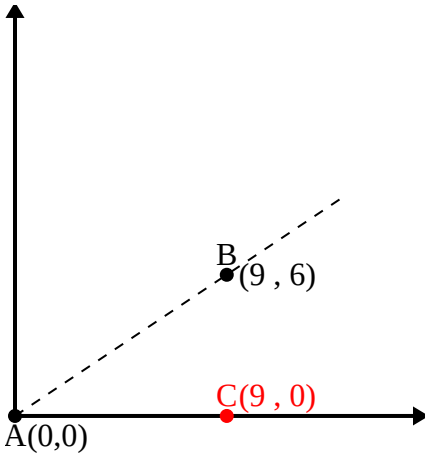
3. _____

4. _____

1-4	75	50	25	0

Use the law of Cosines to find the point B's angle relative to point A.

1)



$\overline{AB}$ length = 10.82

$\overline{AC}$ length = 9

$\overline{BC}$ length = 6

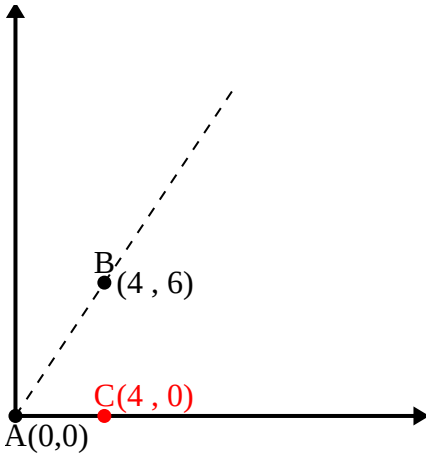
(117 + 81 + 36) ÷ (2 × 10.82 × 9)

0.83

$\cos^{-1}(0.83)$

33.69°

2)



$\overline{AB}$ length = 7.21

$\overline{AC}$ length = 4

$\overline{BC}$ length = 6

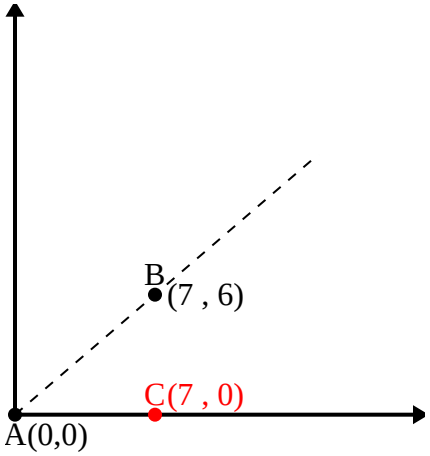
(52 + 16 + 36) ÷ (2 × 7.21 × 4)

0.55

$\cos^{-1}(0.55)$

56.31°

3)



$\overline{AB}$ length = 9.22

$\overline{AC}$ length = 7

$\overline{BC}$ length = 6

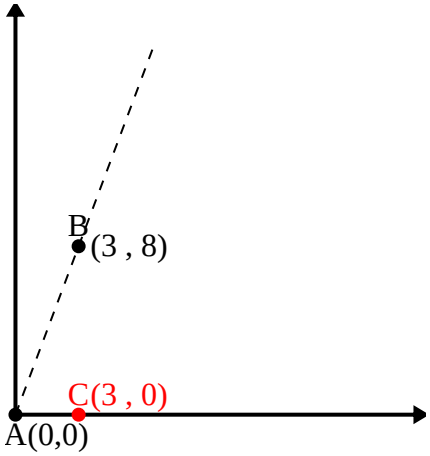
(85 + 49 + 36) ÷ (2 × 9.22 × 7)

0.76

$\cos^{-1}(0.76)$

40.6°

4)



$\overline{AB}$ length = 8.54

$\overline{AC}$ length = 3

$\overline{BC}$ length = 8

(73 + 9 + 64) ÷ (2 × 8.54 × 3)

0.35

$\cos^{-1}(0.35)$

69.44°

Answers

1. **33.69°**
2. **56.31°**
3. **40.6°**
4. **69.44°**

1-4	75	50	25	0